IBM InfoPrint 20

User's Guide -- CD Version

S544-5516-C1

Note!

Before using this information and the product it supports, be sure to read the general information under “Appendix F. Notices” on page 233.

First Edition (March 1998)

This is the CD-ROM version of S544-5516-00. It contains information and corrections that were unavailable when S544-5516-00 went to press. Revisions are marked.

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About This Book

This book is designed to help you use the InfoPrint 20. It describes how to:

- Use the operator panel to navigate menus and control the printer
- Load and select paper and other print materials
- Clear paper jams
- Change printer supplies
- Install printer options
- Troubleshoot printer problems
- Interpret messages displayed on the operator panel

Conventions Used

Names of keys on the operator panel are shown in bold typeface. For example:

- Press the **Enter** key.
- Press **Enter**.

Related Publications

The following books contain information that relates to the InfoPrint 20. Note that all InfoPrint 20 books are available on the CD-ROM that ships with the printer, they are also available on the web (see "Obtaining Documents, Drivers, and Utilities from the Web" on page 7).

- *IBM InfoPrint 20: Quick Reference Card*, G544-5512, provides quick access to information such as using the operator panel, navigating menus, calling IBM for technical assistance, and clearing paper jams.
- *IBM InfoPrint 20: Quick Setup Poster*, S544-5515, shows how to set up the InfoPrint 20.
- *IBM InfoPrint 20: Safety and Warranty Information*, G544-5524, contains safety notices and warranty information in several languages.
- *IBM Network Printers: Ethernet and Token Ring Configuration Guide*, G544-5240, describes how to configure the Ethernet and token-ring network interface cards.
- *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide*, G544-5499, is a condensed version of *IBM Network Printers: Ethernet and Token Ring Configuration Guide*. It is shipped with the network interface cards.

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- *IBM Network Printers: Twinax/Coax Configuration Guide*, G544-5241, describes how to configure the twinax and coax network interface cards. This book is shipped with the cards.
- *IBM Network Printers: PCL5e and PostScript Technical Reference*, S544-5344, contains technical reference information about PCL5e and PostScript support.
- *IBM Network Printers: IPDS and SCS Technical Reference*, S544-5312, contains technical reference information about InfoPrint 20 IPDS and SCS support.

Safety Notices

There are two types of safety notices:

DANGER indicates the presence of a hazard that has the potential of causing death or serious injury.

CAUTION indicates the presence of a hazard that has the potential of causing moderate or minor personal injury.

Safety Precautions

Electrical Safety

This printer is inspected and listed by recognized national testing laboratories, such as Underwriters Laboratories, Inc. (UL) in the U.S.A. and Canadian Standards Association (CSA) in Canada. Listing of a product by a national testing laboratory indicates that the product is designed and manufactured in accordance with national requirements intended to minimize safety hazards. IBM equipment meets a very high standard of safety in design and manufacture. Remember, however, that this product operates under conditions of high electrical potentials and heat generation, both of which are functionally necessary.

Note: In the U.S.A. and Canada, this product is equipped with a required, country-approved plug for the user's safety. Use it in conjunction with a correctly grounded receptacle. In all other countries, the power cable is supplied without a plug. You must provide the appropriate plug and compatible receptacle. Understand the electrical standards of your country, and use only an approved plug. Your IBM marketing representative has information on the voltage requirements in your country.

Fire Safety

Because the paper and toner used in the printer can burn, you should take normal precautions to prevent fire. These precautions include common-sense measures, such as keeping potentially combustible materials (for example, curtains and chemicals) away from the printer, providing adequate ventilation and cooling, limiting unattended operation, and having trained personnel available and assigned to the printer.

Lightning Safety

To avoid personal risk, do not install or reconfigure a communication port or a teleport during an electrical storm.

Laser Safety

This printer complies with the performance standards set by the U.S. Food and Drug Administration for a Class 1 Laser Product. This means that the printer belongs to a class of laser products that does not produce hazardous laser radiation in a customer accessible area. This classification was accomplished by providing the necessary protective housing and scanning safeguards to ensure that laser radiation is inaccessible or within Class 1 limits.

There are various tool-operated machine covers that should be moved, removed, or replaced only by trained service personnel. There are no operator controls or adjustments associated with the laser.

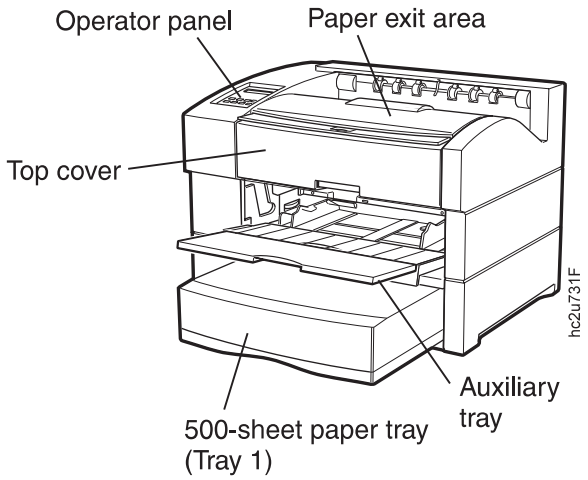
No operator maintenance is required to keep the product in compliance as a Class 1 Laser Product. No adjustments that affect laser operation or power are accessible to the operator.

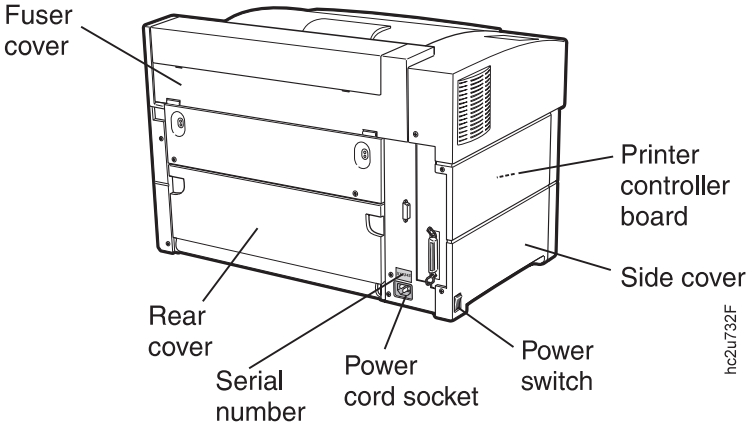
This printer is a Class 1 Laser Product that contains an enclosed Class 3B laser.

Chapter 1. About Your Printer

The InfoPrint 20 is a multifunctional, 20 page-per-minute laser printer. You can attach it directly to your workstation and, using optional network interface cards, you can attach it to networks and other computing environments.

The following illustrations show the basic components of the InfoPrint 20:





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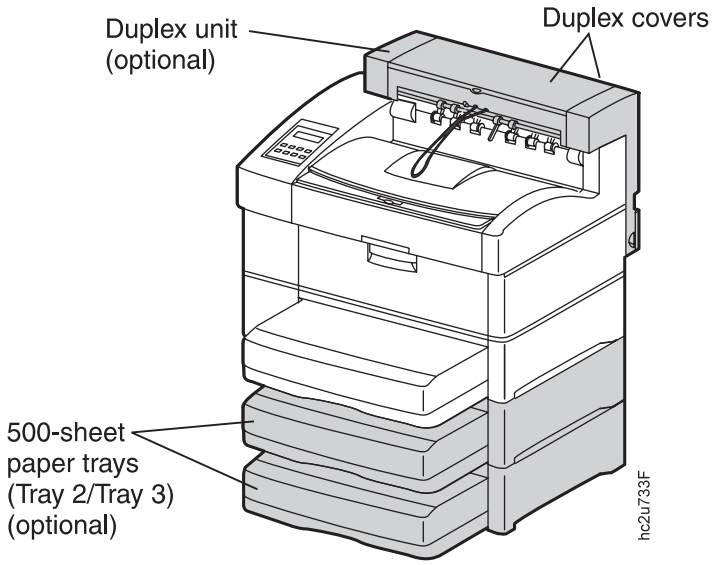
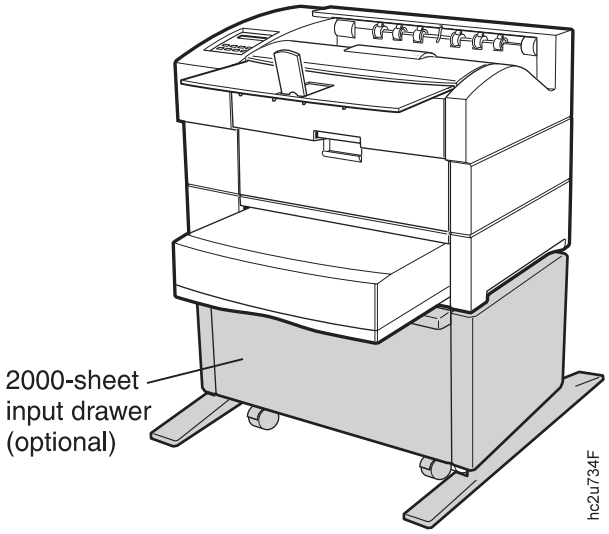
The following illustrations show the InfoPrint 20 with some of the optional features installed:





Standard Features

Standard features of the printer include:

- Printing speed of up to 20 pages per minute
- Resolution of 600 dots per inch (dpi), switchable to 1200 dpi emulation
- PCL5e support
- Adobe PostScript 3
- 8MB of memory
- Parallel interface (IEEE Std 1284-1994)
- 500-sheet paper tray
- 150-sheet auxiliary tray
- 500-sheet paper output bin
- Printer drivers

Optional Features

The following table lists optional features for the InfoPrint 20.

Notes:

1. To order optional features, contact your IBM Authorized Dealer or IBM Sales Representative.
2. For information about installing optional features, see "Chapter 8. Installing Printer Options" on page 147.
3. For information about printer memory and memory requirements, see "Memory Requirements" on page 5.

Feature	Feature Number	Part Number
Duplex Unit	4402	90H0716
Paper Drawer/500-Sheet A4/Letter	4501	90H0717
Paper Drawer/500-Sheet A3/Ledger	4502	90H3341
500-Sheet Tray - A4/Letter	4503	90H0718
500-Sheet Tray - A3/Ledger	4504	90H0719
2,000 Sheet Input Drawer	4620	90H0720
Envelope Tray	4511	90H0721
Network Card for Token-Ring	4120	06L9835
Network Card for Ethernet	4161	06L9838
IBM IPDS SIMM	4820	90H0746

Feature	Feature Number	Part Number
IBM Coax SCS Interface	4171	06L9846
IBM Twinax SCS Interface	4141	06L9849
4MB Memory SIMM	4304	63H2463
8MB Memory SIMM	4308	63H2465
16MB Memory SIMM	4316	63H2467
32MB Memory SIMM	4332	63H2469
2MB Flash Memory	4030	63H2443
4MB Flash Memory	4032	63H2444
Hard Drive	4320	90H0610
PC Parallel Cable		63H1956
Software CD Kit		90H0749
Operator Panel Overlays		90H3335
6 ft US (Chicago) Line Cord		6952301

Technical Support

If you run into a problem, see “Appendix A. Troubleshooting” on page 189. If you still cannot solve the problem, IBM customer technical support is available at no additional charge during the warranty period. In the U.S.A. and Canada, call 1-800-358-6661.

Notes:

1. Have your printer serial number ready. The serial number is on the back of the printer. It is also listed in the Printer Details section of the printer configuration page (see “Printing the Printer Configuration Page” on page 25). If you are asked for a machine type, specify 4320.
2. If you need IBM operating system support (for example, AIX, OS/2, OS/400, and MVS), contact IBM software support (1-800-237-5511 in the U.S.A., 1-800-465-2222 in Canada).

Ordering Supplies

Printing supplies can be ordered through your IBM authorized printer or printer supplies reseller. If you have no reseller, you can call 1-888-IBM-PRINT (1-888-426-7746) in the U.S. or Canada to ask for an authorized dealer or to order from IBM Printer Supplies.

In other countries, contact your point of purchase for information about where to order supplies.

In Europe, you can call the IBM Supplies Fulfillment Operation at 31-43-350 2756 or at the following numbers:

- Belgium: 0800 71950
- Denmark: 80015534
- Finland: 08001-13110
- France: 0800 905871
- Germany: 0130 818005
- Italy: 1-678 78349
- Norway: 800-11389
- Spain: 900-983131
- Sweden: 020-794270
- United Kingdom: 0800-968679

The following table lists supplies for the InfoPrint 20. See “Chapter 7. Maintaining the Printer” on page 131 for more information.

Supply	Part Number
Toner Cartridge	90H0748
Usage Kit (100 Volt)	90H3465
Usage Kit (120 Volt)	90H0750
Usage Kit (230 Volt)	90H0751

Memory Requirements

Table 1 on page 6 shows the minimum memory requirements for the InfoPrint 20.

Notes:

1. The PAGEPROT menu item is available on the PCL Menu, the PostScript (PS) Menu, and the IPDS Menu. It determines whether or not the printer uses compression when it prints complex pages.
   - PAGEPROT=AUTO—the printer uses compression when it runs into memory constraints. This can reduce print speed.
   - PAGEPROT=ON—the printer does not use compression and therefore requires more memory.
2. When a column contains two values, the second value indicates the amount of memory required to support context saving. *Context Saving*

allows the printer to remember information about the current data stream when it switches back and forth from one job type (PostScript or PCL5e) to another. InfoPrint 20 always does context saving for IPDS.

The Memory Configuration (MEMCONFIG) Menu provides two menu items, PCL SAVE and PS SAVE, which allow you to set context saving on or off for each data stream. These menu items are displayed only if there is enough memory in the printer to permit context saving.

Table 1. Memory Requirements

Requirement	600		1200	
	Simplex	**Duplex**	**Simplex**	**Duplex**
Base configuration				
PAGEPROT=AUTO (Letter-size paper)	8/12 MB	8/12 MB	12/24 MB	12/24 MB
PAGEPROT=AUTO (A3-size paper)	8/12 MB	8/12 MB	16/24 MB	24/32 MB
PAGEPROT=ON (Letter-size paper)	8/12 MB	12/16 MB	24/32 MB	44/52 MB
PAGEPROT=ON (A3-size paper)	12/16 MB	24/28 MB	44/56 MB	96 MB
Base configuration and IPDS				
PAGEPROT=AUTO (Letter-size paper)	8/12 MB	12/16 MB	12/24 MB	16/24 MB
PAGEPROT=AUTO (A3-size paper)	12/16 MB	16/20 MB	20/24 MB	28/36 MB
PAGEPROT=ON (Letter-size paper)	12/16 MB	16/20 MB	24/32 MB	44/56 MB
PAGEPROT=ON (A3-size paper)	16/20 MB	28/32 MB	48/64 MB	96 MB

The InfoPrint 20 CD-ROM

The InfoPrint 20 ships with a CD-ROM which includes InfoPrint 20 documents, drivers, programs, and utilities, including:

- InfoPrint 20 Documentation—the CD-ROM includes most InfoPrint 20 documents in Adobe Acrobat Portable Data File (PDF) format for online viewing and printing.
- PCL5e and PostScript printer drivers for numerous systems, including Windows, Windows 95, Windows NT, OS/2, AIX, HP-UX, SCO UNIX, and Sun Solaris. For a complete list of drivers, see the CD-ROM.

- Network Printer Manager (NPM)—NPM is a tool for network administrators. It runs on the Web, Windows 95, Windows NT, and OS/2. NPM:
  - Enables you to install and configure InfoPrint 20 in Local Area Networks (LANs), including TCP/IP and Novell 3.12 and 4.X.
  - Monitors and provides network printer status information including online/offline status, paper jams, out of toner conditions, and empty tray conditions.

    NPM uses industry standard, open systems Simple Network Management Protocol (SNMP). SNMP supports Management Information Base (MIB) which is a collection of information that describes the printer's functions and features.
- Network Printer Resource Utility (NPRU)—NPRU enables administrators to download fonts and overlays (PCL macros and PostScript overlays) to the printer memory (DRAM, flash memory, or hard drive). NPRU runs on Windows 3.1, Windows 95, and OS/2.
- IBM TCP/IP Network Port Monitor for Windows NT 4.0—This enables users to receive up-to-date bidirectional printer and job status (including end-of-job notification) from their network printers. The port monitor is fully integrated into the Windows NT 4.0 print subsystem, so the bidirectional status is displayed through the standard Windows NT printer queue view. Clients on other Windows platforms can also see up-to-date status if their printers are defined on Windows NT 4.0 and shared to the network.

Obtaining Documents, Drivers, and Utilities from the Web

To obtain current versions of the InfoPrint 20 documentation, printer drivers, utilities, and programs, do the following:

1. Access the IBM Printing Systems Company home page:

   `http://www.printers.ibm.com`
2. Go to the document, printer driver, utility, or program you need and follow the instructions to download it

Obtaining Code Updates from the Web

To obtain code updates for the InfoPrint 20, if required, do the following:

1. Access the IBM Printing Systems Company home page:

   `http://www.printers.ibm.com`
2. Navigate to the code update you need and follow the instructions to download it

Chapter 2. Installing Your Printer

IBM InfoPrint 20: Quick Setup Poster

To set up your printer, see *IBM InfoPrint 20: Quick Setup Poster*, which is shipped with the printer. Use this checklist as a supplement to *IBM InfoPrint 20: Quick Setup Poster*.

Installation Checklist

__ 1. Unpack your printer. See “Unpacking and Setting Up the Printer” on page 10 .

__ 2. Install and load the paper tray shipped with your printer. See:
- *IBM InfoPrint 20: Quick Setup Poster*
- The installation sheets shipped inside the paper trays
- “Loading the A4/Letter Paper Tray” on page 41
- “Loading the A3/Ledger (11 x 17) Paper Tray” on page 45

__ 3. Install the toner cartridge. See:
- *IBM InfoPrint 20: Quick Setup Poster*
- “Changing the Toner Cartridge” on page 132

__ 4. Apply the operator panel overlay (if it has not already been applied). See “Applying the Operator Panel Overlay” on page 11.

__ 5. Power on the printer. See “Powering On the Printer” on page 13.

__ 6. Select a language for messages and menus (the default is English). See “Selecting a Language” on page 15.

__ 7. Print the printer configuration page to verify the printer works. See “Printing the Printer Configuration Page” on page 25.

__ 8. Connect a parallel cable (if desired). See “Connecting the Parallel Cable” on page 16.

Note: In addition to the parallel cable attachment, the InfoPrint 20 supports a wide variety of network attachment interfaces, including twinax, coax, token-ring, and Ethernet attachments. For information about installing network attachments and other optional features, please read “Network Interface Cards” on page 154 .

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__ 9. Install other options, such as paper trays, the duplex unit, extra memory, the IPDS SIMM, flash memory, the hard drive, and network interface cards (Ethernet, token-ring, twinax, and coax). See “Chapter 8. Installing Printer Options” on page 147.

__ 10. Install print drivers and configure your host environment. See “Installing Printer Drivers” on page 18.

__ 11. Get familiar with your printer. See “Chapter 3. Using the Operator Panel” on page 21.

Unpacking and Setting Up the Printer

Before you install your printer, make sure you have a place large enough to put it. Without any of its optional features attached, the printer dimensions are:

- Width: 22.8 inches (580 mm)
- Depth: 23.7 inches (602 mm)
- Height: 16.3 inches (413 mm)

In addition, make sure you leave enough room around the printer to access and operate it, and make sure there is enough room around all power plugs for you to easily disconnect the power cord. IBM recommends leaving at least 13.6 inches (340 mm) in the back of the printer, 30.4 inches (760 mm) in the front of the printer, 8 inches (200 mm) on each side, and 16 inches (400 mm) above the printer.

CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

hcsf0231

Remove all items from the packing box including packaging pieces. Lift the printer and place it on a flat surface. If any of the following items are missing, contact your point of purchase:

- IBM InfoPrint 20
- 500-sheet paper tray
- Toner cartridge
- The following documents: *IBM InfoPrint 20: Quick Reference Card*, *IBM InfoPrint 20: Quick Setup Poster*, and *IBM InfoPrint 20: Safety and Warranty Information*

- CD-ROM
- Power cord (in some countries the power cord needs to be ordered separately and is shipped in a separate box)

Note: Save all packing materials in case you need to ship or store your printer.

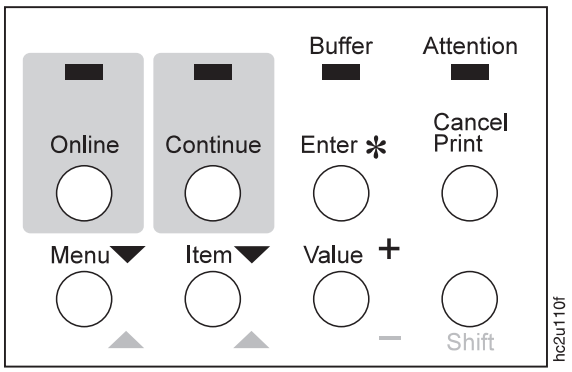
Applying the Operator Panel Overlay

Important!
Some printers may have the overlay installed already. If yours does, skip this procedure.

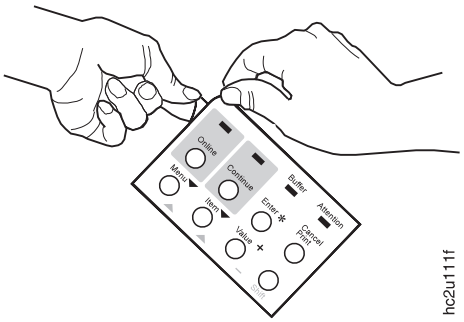
1. Peel the thin layer of protective plastic off the message display area.

2. Use a dry cloth or towel to remove dust from the operator panel.

3. Locate the overlay. The overlay lists the names of the keys on the operator panel.



4. Remove the backing from the overlay.

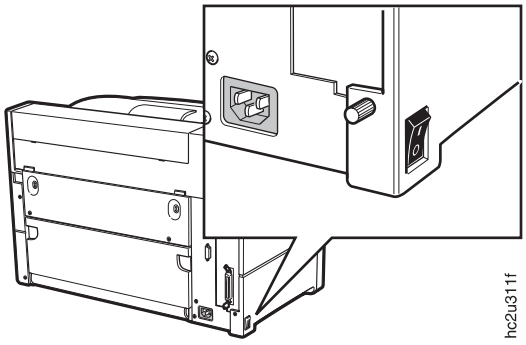


5. Position the overlay so that the top of it lines up squarely with the top of the operator panel. Working down from the top of the overlay, gently

press it into place.

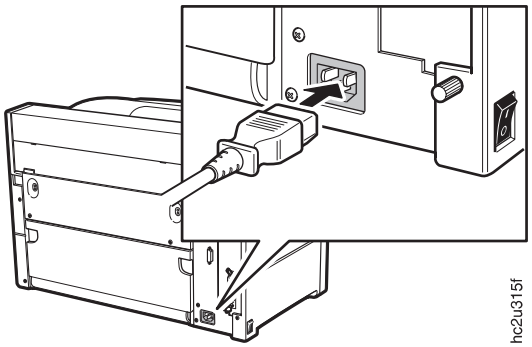
Powering On the Printer

1. Make sure the printer is off. The printer is off when the 0 on the switch is pressed in.

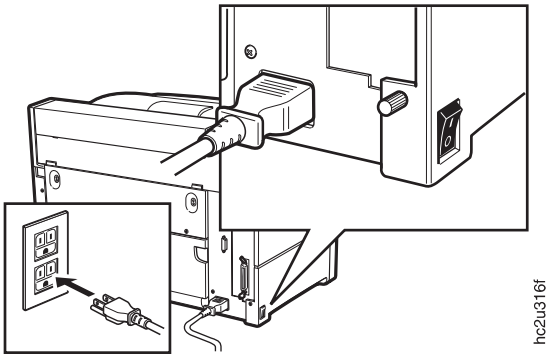


2. Plug the power cord into the socket located on the back of the printer.

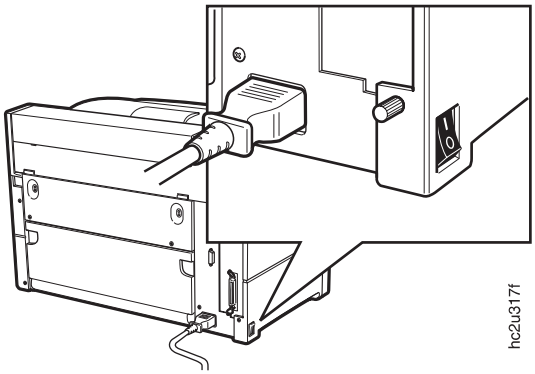
Note: Always make sure you leave enough room around the power socket for you to easily disconnect the printer power cord.



3. Plug the other end of the cord into a grounded AC wall outlet or an equivalent fixture.



4. To power on the printer, press the 1 on the power switch.



5. The printer displays the message WARMING UP... while it warms up (this usually takes a little longer than a minute). When the printer is ready, it displays the message READY.

Selecting a Language

Important!
English is the default language for messages and menus. If you use English, skip this procedure.

To display messages and menus in a language other than English, do the following:

1. Press the **Online** key once; you see OFFLINE in the message display area.
2. Press the **Menu** key until you see LANGUAGE MENU in the message display area. Then press the **Item** key until you see LANG=ENGLISH.
3. Press the **Value** key until you see the language you want to select.
4. To change the value, press the **Enter** key. An asterisk appears next to the language you select, indicating that it is now active.
5. Press the **Online** key to make the printer ready. You see the READY message in the language you selected.

Connecting the Parallel Cable

Important!

You need to supply the parallel cable; it is not included with the InfoPrint 20. The parallel cable must be IEEE Std 1284-1994 compliant (IBM part number 63H1956 or its equivalent). To order a parallel cable or other optional feature, contact your IBM Authorized Dealer or IBM Sales Representative. To install the following optional network interface cards, see “Network Interface Cards” on page 154:

- IBM Network Card for Ethernet (10Base2/10BaseT)
- IBM Network Card for Token Ring
- IBM Twinax SCS Interface
- IBM Coax SCS Interface

DANGER

<1-13> Do not connect or disconnect a communication port, a teleport, or any other connector during an electrical storm.

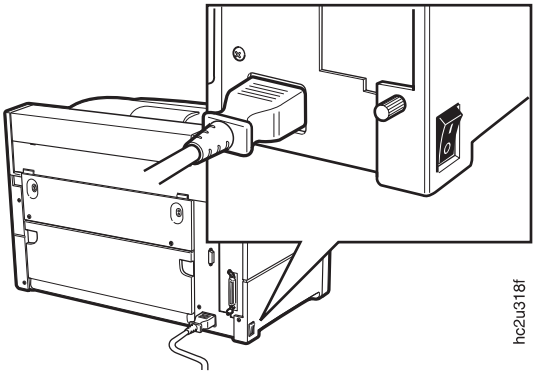
hcsf0113

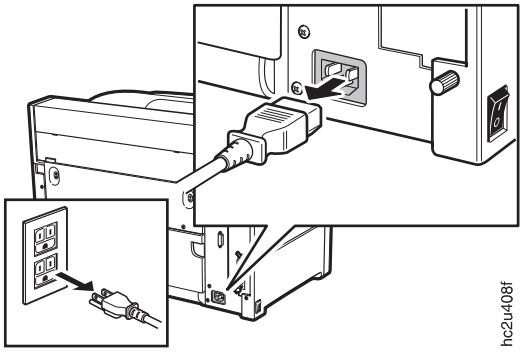
DANGER

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

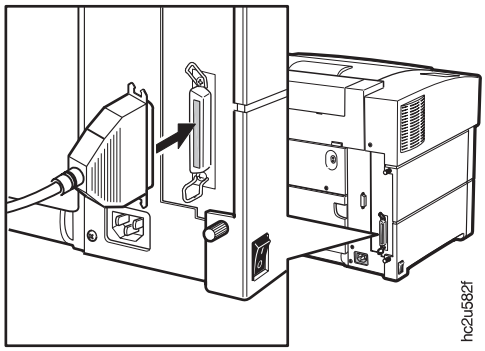
hcsf0114

1. Turn off the printer and unplug it from the wall.



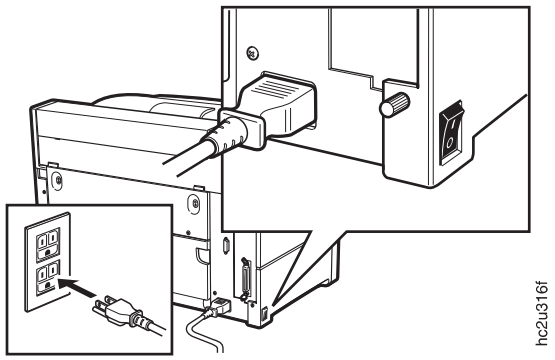


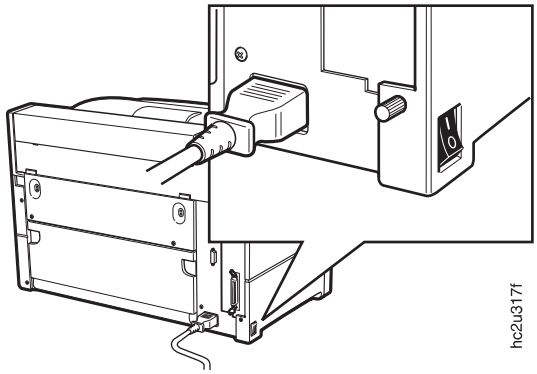
2. Attach the parallel cable to the parallel interface port on the back of the printer.



3. Attach the other end of the cable into the parallel interface slot on your PC or workstation.

4. Plug the printer power cord into the wall and turn the printer on.





Installing Printer Drivers

Before you can print from your PC or workstation to your printer, you need to install the right printer driver on your system. The InfoPrint 20 includes a CD-ROM which contains PCL5e and PostScript printer drivers for numerous systems including Windows, Windows 95, Windows NT, OS/2, AIX, HP-UX, SCO UNIX, and Sun Solaris. For a complete list of drivers, see the CD-ROM.

Notes:

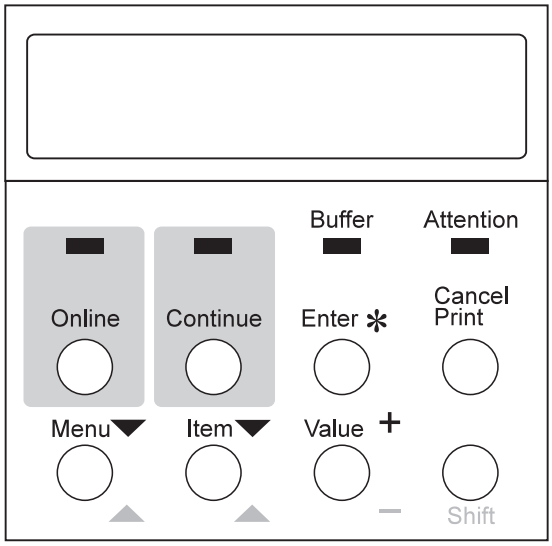
1. For your printer driver to work effectively, you must indicate to your printer driver what features are installed on your printer, for example, what trays are installed, and how much memory is installed. Therefore, after you install a driver, make sure you update it to indicate the features installed on your printer. Also, if you install (or remove) a feature at a later date, make sure you update your printer driver.

2. Each operating system has unique driver installation procedures. For specific installation instructions, see the driver installation and README documentation for your operating system.
3. Printer drivers are also available as follows:
   a. Access the IBM Printing Systems Home Page at: http://www.printers.ibm.com
   b. Navigate to the printer driver you need and follow the instructions to download it

Chapter 3. Using the Operator Panel

This chapter describes how to use the InfoPrint 20 operator panel. The operator panel is on the top, left-hand side of the printer. It consists of a message display area, status indicator lights, and operator keys.

Message display area - shows printer messages and setup menu information



Indicators - show printer status (such as online or offline)

Keys - cancel printing, navigate menus, take the printer offline or put it online

- For information about indicator lights, see “Understanding the Operator Panel Indicator Lights” on page 22.
- For a description of all messages, see “Appendix C. Printer Messages” on page 207 .
- For information about operator panel keys, see “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24.
- For an overview of some of the most common operator panel tasks, see “Other Operator Panel Tasks” on page 27.
- For an overview of all printer menus, see “Chapter 6. Operator Panel Menus” on page 87.

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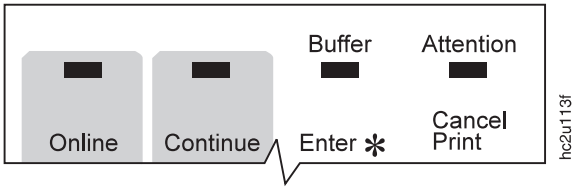
Understanding the Operator Panel Indicator Lights

The status indicators are located at the center of the operator panel.



Indicator lights can be on, off, or blinking.

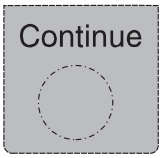
Indicator	**Condition**
Online	On—the printer is online and idle. Blinking—the printer is online and receiving or processing data. Off—the printer is offline. Note that the printer must be offline before you can change menu settings.
Continue	On—a condition that requires operator attention exists. Press the **Continue** key to continue printing or press the **Cancel Print** key to cancel printing. (If the Auto-continue function is on, the printer may automatically resume printing after thirty seconds. For more information, see the description of the AUTOCONTINU item under “Configuration (Config) Menu” on page 95.) Off—the printer is operating normally.
Buffer	On—a page or partial page is stored in memory. The page prints when it completes, or, for partial pages, when (a) another job starts, (b) a port timeout occurs, or (c) you press the **Enter** key. Off—no pages are stored in the printer memory.
Attention	Blinking—the printer requires attention. Off—the printer is operating normally.

Using the Operator Panel Keys

The operator panel keys enable you to configure and operate the printer. They are located at the bottom of the operator panel.

c8pu0006

Use the **Online** key to take the printer offline or to put it back online.
Note: The printer must be offline before you can change menu settings or cancel jobs.

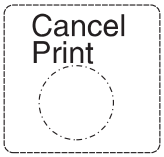


hc2u114f

Use the **Continue** key to continue printing when the Continue indicator is on. When the Continue indicator is on, a condition that requires operator attention exists. If the Continue indicator is on and you do not want to continue printing, press the **Cancel Print** key to cancel printing.

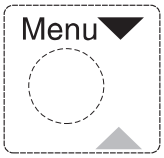
hc2u115f

Use the **Enter** key to confirm a menu value. Also use **Enter** to print a partial page stored in memory. (The Buffer indicator light goes on to indicate a partial page is in memory.)
Note: To change a menu item to a new value, you must press the **Enter** key when the value is displayed in the message display area. After you press **Enter**, an asterisk (*) appears next to the new value, indicating that it is active.



c8pu0009

Use the **Cancel Print** key to cancel the current print job. (After you press the **Cancel Print** key, it may take a while before the current job stops printing.) After the job is canceled, the printer begins printing the next job in the queue.
Note: The printer must be offline or the Continue indicator must be on before you can cancel a job.

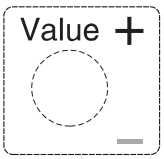


c8pu0010

Use the **Menu** key to scroll through the menu list. As you scroll through the list, the current menu is displayed in the message display area.
Note: The printer must be offline before you can navigate menus.

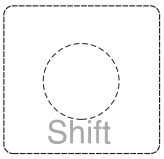
c8pu0011

Use the **Item** key to scroll through the list of items for the menu listed in the message display area. As you scroll through the list, the current item and, if applicable, the current value for the item is displayed in the message display area, just below the name of the current menu.



c8pu0012

Use the **Value** key to scroll through a list of acceptable values for a menu item. Press the **Value** key once to scroll forward one value. Press and hold the **Value** key to scroll more quickly through the list (especially for numeric values).
Note: To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value, indicating that it is now active.



c8pu0013

Use the **Shift** key to reverse the order in which you scroll when you use the **Menu**, **Item**, or **Value** keys. To scroll up instead of down, press both keys at the same time.

Navigating Menus

There are two types of menus: action menus and configuration menus.

Action menus contain a list of actions you can perform, such as printing a list of active fonts or printing a printer configuration page. There are three action menus: the Test Menu, the Reset Menu, and the Machine Info Menu.

To work with action menus:

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
2. Press the **Menu** key to display the menu you want.
3. Press the **Item** key to display the action item you want.
4. Press the **Enter** key to perform the action.

For an example of working with an action menu, see “Printing the Printer Configuration Page” on page 25.

Configuration menus contain lists of items that define current settings for the printer, such as default fonts, default input trays, and attachment configuration settings.

To work with configuration menus:

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
2. Press the **Menu** key to display the menu you want.
3. Press the **Item** key to display the item you want.

4. Press the **Value** key to display the value you want.
5. Press the **Enter** key to change the setting to the value currently displayed in the message display area. An asterisk (*) appears next to the value after it is selected.

Notes:

1. When you select a new value, it stays selected until you change it or you reset the printer defaults. Menu settings are saved when you power off the printer.
2. Many print applications and printer drivers allow you to specify values such as fonts and input trays. Values set by print applications or printer drivers override values set at the printer.

Locking Menus

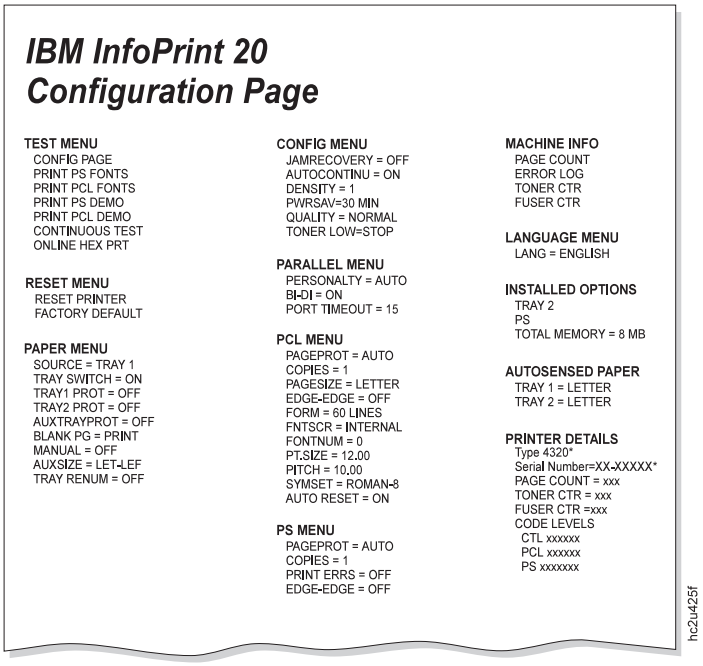
To lock menus, simultaneously press the **Enter** key and **Shift** key while you power on the printer. When menus are locked, users can view menu settings, but they cannot change them. Users can also continue to print configuration pages and demo pages while menus are locked.

To unlock menus, simultaneously press the **Enter** key and **Item** key while you power on the printer.

Printing the Printer Configuration Page

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
2. Make sure Letter or A4-size paper is loaded in the default tray. See “Selecting The Default Input Tray” on page 63 for more information.
3. Press the **Menu** key once. TEST MENU appears in the message display area.
4. Press the **Item** key once. CONFIG PAGE appears in the message display area. Note that the menu name appears on the top line and the menu item appears on the second line.

5. Press the **Enter** key to print the configuration page. (It takes about a minute.) The following figure shows a sample printer configuration page.



The configuration page lists:

- **Menus**—All of the menu settings currently active for your printer. Note that the list of menus you see is determined by the options you have installed; for example, you see the Ethernet Menu only when you have the Ethernet attachment installed. Also note that the configuration page displays the menus and options in the order they appear on the operator panel; this allows you to use the configuration page as a menu map.

  For a description of all available menus, see “Chapter 6. Operator Panel Menus” on page 87.

- **Installed Options**—The options and memory you have installed.

  Important: IBM recommends doing the following whenever you install a feature:

  – Print the printer configuration page. Then look under Installed Options to make sure the printer recognizes the option and the installation was successful.

– Update your printer driver to indicate the new feature is available. (This includes features such as new trays and extra memory; you do not need to indicate new network interface cards.)

- **Autosensed Paper**— A list of the paper sizes that the printer sensors have determined is in each tray. (Note that the auxiliary tray does not have a paper-size sensor).
- **Printer Details**
  – **Type**—The machine type (4320).
  – **Serial Number**—The machine serial number.
  – **Page Count**—The number of pages printed on the printer.
  – **Toner CTR**—The number of pages printed since the toner counter was reset. You should reset the toner count whenever you replace the toner cartridge. See “Machine Information Menu” on page 128 for more information.
  – **Fuser CTR**—The number of pages printed with the fuser since the fuser counter was reset. You should reset the fuser counter whenever you replace the usage kit. See “Machine Information Menu” on page 128 for more information.
  – **Code Levels**—Code levels of the printer controller and other programs.
    - **CTL**—The code level of the printer controller.
    - **PCL**—The code level of the printer PCL code.
    - **PS**—The code level of the printer PostScript code.

    Note: In addition to the code levels listed here, the configuration page will list code levels for other installed options, such as network interface cards.

6. To restore the printer to READY status, press the **Online** key.

Other Operator Panel Tasks

The rest of this chapter contains examples of how to perform some other common operator panel tasks. In addition, “Common Paper Handling Tasks” on page 63 contains examples of how you can use the operator panel to change Paper Menu settings, such as default input trays and default paper sizes. “Chapter 9. Configuring Printer Network Addresses” on page 185 describes how to set TCP/IP network values (IP address, gateway address, subnet mask, locally administered MAC address) from the operator panel.

Making Duplex or Simplex Printing the Printer Default

Situation: You have the duplex unit installed and you want to make duplex printing or simplex printing the printer default.

Note: Values set in print jobs (either by the print application or by the printer driver) override values you set at the printer. If a print job specifies simplex printing and the printer default is duplex, the printer honors the print job setting and prints on one side only.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see PAPER MENU in the display.
3. Press the **Item** key until you see DUPLEX=ON* or DUPLEX=OFF in the display.
4. Press the **Value** key until you see the new value you want.
5. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Notes:

1. The BINDING item on the Paper Menu lets you specify how you want duplex jobs to print. If BINDING is set to LONG (the default value) the job prints as if the paper is to be bound along the long edge of the paper. (On the left for portrait documents, along the top for landscape documents.) If you set BINDING to SHORT, the job prints as if the paper is to be bound along the short edge of the paper. (On the top for portrait documents, on the left for landscape documents.)
2. If you install the duplex unit, you can also use your print driver to request job offsetting. Note, however, that custom forms cannot be offset **unless** the job is sent from an IPDS application (not PostScript or PCL) and the form width is less than 297 mm.

Canceling a Print Job

Situation: You want to cancel the job that is currently printing.

Action:

1. Press the **Online** key to take the printer offline.
2. Press the **Cancel Print** key. The current job will be canceled and removed from the queue after the printer completes the current page.
3. To restore the printer to READY status, press the **Online** key.

Printing the Ethernet Network Interface Card Configuration Page

Situation: You want to print the configuration page for the Ethernet network interface card.

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
2. Press the **Menu** key once. TEST MENU appears in the message display area.
3. Press the **Item** key until you see PRINT EN CONFIG.
4. Press the **Enter** key.
5. Press the **Online** key to restore the printer to READY status, and print the configuration page. The printer must be online to print the configuration page. It takes about a minute.

Note: The configuration page prints on the paper size specified by the PAGESIZE item in the PCL Menu.

Printing the Token-Ring Network Interface Card Configuration Page

Situation: You want to print the configuration page for the token-ring network interface card.

1. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
2. Press the **Menu** key once. TEST MENU appears in the message display area.
3. Press the **Item** key until you see PRINT TR CONFIG.
4. Press the **Enter** key.
5. Press the **Online** key to restore the printer to READY status, and print the configuration page. The printer must be online to print the configuration page. It takes about a minute.

Note: The configuration page prints on the paper size specified by the PAGESIZE item in the PCL Menu.

Printing a List of PCL5e Fonts

Situation: You want to see a list of the PCL5e fonts installed on the printer.

Action:

1. Press the **Online** key to take the printer offline.
2. Press the **Menu** key. TEST MENU appears in the display area.
3. Press the **Item** key until you see PRINT PCL FONTS.
4. Press the **Enter** key to print the PCL5e fonts list.

5. After the page prints, press the **Online** key to restore the printer to READY status.

Printing a List of PostScript Fonts

Situation: You want to see a list of the PostScript fonts installed on the printer.

Action:

1. Press the **Online** key to take the printer offline.
2. Press the **Menu** key. TEST MENU appears in the display area.
3. Press the **Item** key until you see PRINT PS FONTS.
4. Press the **Enter** key to print the PostScript fonts list.
5. After the page prints, press the **Online** key to restore the printer to READY status.

Printing a List of IPDS Resident Fonts

Situation: You have the optional IPDS SIMM installed on your printer and you want to see a list of the IPDS resident fonts.

Action:

1. Press the **Online** key to take the printer offline.
2. Press the **Menu** key. TEST MENU appears in the display area.
3. Press the **Item** key until you see PRINT IPDS FONTS. (This item appears only if you have the IPDS SIMM installed on your printer.)
4. Press the **Enter** key to print the IPDS resident fonts list.
5. After the page prints, press the **Online** key to restore the printer to READY status.

Adjusting Print Density

Situation: You want to increase or decrease the print density, making the print darker or lighter.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see CONFIG MENU in the display.
3. Press the **Item** key until you see DENSITY=n* in the display, where n is the density value currently selected.
4. Press the **Value** key until you see the value you want to assign to the toner density; 4 is the most dense, 0 is the least dense.

5. Press the **Enter** key to select the new density. An asterisk (*) appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Notes:

1. Increasing density may make documents appear darker; however, it also uses more toner, which decreases the number of images you can expect to print with your toner cartridge.
2. Decreasing toner density may improve image clarity.
3. Density has little effect on solid area density (large black areas), unless QUALITY is set to ECONO on the Config Menu.
4. The DENSITY item in the Paper Menu always controls the printer density setting. You cannot use a printer driver to change the density setting.

Changing the Power Savings (Sleep Mode) Interval

Situation: You want to increase or decrease the interval before your printer goes into power-saving mode. In this mode, the printer powers down most of its systems. This saves energy, but also requires extra time to warm up when the next print is requested. The default is 30 minutes.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see CONFIG MENU in the display.
3. Press the **Item** key until you see PWRSAV=30* in the display. (If this value has already been changed, a number other than 30 will appear in the display.)
4. Press the **Value** key until you see the value (number of minutes) you want to assign to the power-saver feature. Select OFF if you never want the printer to go into power-saving mode.
5. Press the **Enter** key to select the new power-savings value. An asterisk (*) appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Changing the Language Shown on the Display Panel

Situation: You want to display operator panel messages and menus in a language other than English.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Shift** and **Menu** keys at the same time. You see LANGUAGE MENU.

3. Press the **Item** key. LANG=ENGLISH* appears as the first menu item unless the language has already been changed.
4. Press the **Value** key until you see the language you want to select.
5. Press the **Enter** key. An asterisk (*) appears next to the language, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Chapter 4. Paper Handling

This chapter describes how to:

- Select print media
- Load print media into the following:
  - 500-sheet A4/Letter tray
  - 500-sheet A3/Ledger (11 x 17) tray
  - 150-sheet auxiliary tray
  - Envelope tray
  - 2000-Sheet Input Drawer
- Use the Paper Menu to turn tray switching on or off, or to specify default trays and paper sizes for your printer.

Notes:

1. Printer menus refer to trays as follows:
   - Tray 1 is the standard 500-sheet input tray. 500-sheet trays can be A4/Letter size or A3/Ledger (11 x 17) size.
   - Tray 2 and Tray 3 are optional input trays; you can install one or two additional 500-sheet trays, one additional 500-sheet tray and the 2000-Sheet Input Drawer, or just the 2000-Sheet Input Drawer. If you install one additional tray, it is Tray 2. If you install two additional trays, the middle tray is Tray 2 and the lower tray is Tray 3. The 2000-Sheet Input Drawer must be the lowest tray.
   - AUXTRAY is the flip-down tray in the front of the printer.
   - If you replace a paper tray with an envelope tray, the printer refers to the envelope tray as Tray 1, Tray 2, or Tray 3, depending on which paper tray the envelope tray replaces.
2. Values specified in your print jobs normally override defaults set at the printer. For example, if a print job requests the main paper tray (Tray 1), the printer will use the main paper tray, even if the default tray is set to something else.
3. If the TRAY SWITCH item in the Paper Menu is ON, the printer automatically looks for the correct paper in another tray when the current tray is empty. The printer **automatically** looks in other trays when the specified tray contains the wrong size of paper. See “Turning Tray Switching On or Off” on page 64.

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Important

Please use print materials that conform to the specifications listed in the following sections. Using non-conforming print materials can decrease page yield, cause jams, and damage your printer.

The following sections contain information about selecting print materials, including:

- "Selecting Labels and Transparencies" on page 35
- "Auxiliary Tray Paper Specifications" on page 36
- "A4/Letter Tray Paper Specifications" on page 37
- "A3/Ledger (11 x 17) Tray Paper Specifications" on page 38
- "Envelope Tray Paper Specifications" on page 39
- "2000-Sheet Input Drawer Paper Specifications" on page 40

Notes:

1. Some print media, although they conform to size and weight specifications, may still function poorly in your printer. Print quality, jam rates, and output stacking can be affected by the printing environment (temperature and humidity) and other characteristics of the paper itself (for example, structure, moisture content, smoothness, or thickness). IBM recommends you test small amounts of print media using your printing application in your current operating environment before you purchase large quantities of the media or you print large volumes. For more information about paper specifications see IBM Page Printers Paper Reference Booklet, G544-3178, or IBM Advanced Function Printer Cut Sheet Paper Reference for Use with IBM Electrophotographic Printers, G544-3915.
2. The following media weights are supported:
   - Paper trays: 16-28 pound (60-105 grams/meter²)
   - Envelope tray: 16-28 pound (60-105 grams/meter²)
   - Auxiliary tray:
     - Paper, labels, transparencies, envelopes: 60-135 grams/meter²
     - Japanese Official Postcard: 190 grams/meter²
   - 2000-Sheet Input Drawer: 16-28 pound paper (60-105 grams/meter²)
3. Do not use the following types of paper and printable material in your printer:
   - Multipart forms

- Stapled, folded, or wrinkled paper
- Smooth or coated paper

4. Use the auxiliary tray to print transparencies or labels. Do not feed these types of print media from the paper trays. See “Selecting Labels and Transparencies”.
5. Some recycled papers release paper dust that can accumulate and cause frequent paper jams and reduced supplies life.
6. High humidity can damage paper. Try to store paper where it is cool and dry.

Selecting Labels and Transparencies

Labels and transparencies can be loaded only in the auxiliary tray.

Labels

Printer performance with labels will vary depending on:

- Weight of the label stock
- Label stock component materials (liner, adhesive, face stock)
- Perforations

Printer damage can result from use of incompatible label stock. For this reason, you should contact the label manufacturer to ensure that the label stock is laser printer compatible, and that the labels will not detach or shift when exposed to 235°C (455°F) temperatures in the fuser. Before using the labels, test a sample sheet of the label stock to ensure that the following do not occur:

- Labels detach or shift position
- Printer emits an unusual odor while printing on the label stock
- Toner does not adhere properly to the face of the labels
- Label adhesive contaminates the printer

If any of the above occur, do not use the label stock in your printer. Ask your label supplier for a label stock that is compatible with the printer.

Transparencies

Printer damage can result from use of incompatible transparency stock. For this reason, you should contact the transparency stock manufacturer to ensure that the transparencies are laser printer compatible, and that they can withstand fuser temperatures up to 235°C (455°F). Before using the transparencies, test a sample sheet of the transparency stock to ensure that the following do not occur:

- Transparency jams in the printer
- Toner fails to adhere properly to the face of the transparency
- Printer emits unusual odors while printing the transparency
- Transparency melts in the fuser

If any of the above occur, do not use the transparencies in your printer. Contact your transparency supplier for a transparency stock that is compatible with the printer.

Auxiliary Tray Paper Specifications

Style	Size	Duplex	Short-edge feed (SEF)	Long-edge feed (LEF)
Paper				
Letter	8.5 x 11 in 215.9 x 279.4 mm	Yes	Yes	Yes
Legal	8.5 x 14 in 215.9 x 355.6 mm	Yes	Yes	No
Folio	8.5 x 13 in 215.9 x 330.2 mm	Yes	Yes	No
11 x 17	11 x 17 in 279.4 x 431.8 mm	Yes	Yes	No
A4	8.27 x 11.69 in 210 x 297 mm	Yes	Yes	Yes
B5-JIS	7.16 x 10.12 in 182 x 257 mm	No	Yes	Yes
B4	10.12 x 14.33 in 257 x 364 mm	Yes	Yes	No
A5	5.85 x 8.27 in 148.5 x 210 mm	No	No	Yes
A3	11.69 x 16.54 in 297 x 420 mm	Yes	Yes	No
Executive	7.25 x 10.25 in 184.2 x 266.7 mm	No	No	Yes
Statement	5.5 x 8.5 in 139.7 x 215.9 mm	No	No	Yes
Custom forms	Minimum: 3.5 x 5.8 in 88 x 148 mm Maximum: 13 x 20 in 330 x 508 mm	No	Yes	No

Style	Size	Duplex	Short-edge feed (SEF)	Long-edge feed (LEF)
Envelopes and Postcards				
Japanese Official Postcard (Hagaki)	3.94 x 5.83 in 100 x 148 mm	No	Yes	No
Monarch	3.875 x 7.5 in 98.4 x 190.5 mm	No	Yes	No
COM10	4.125 x 9.5 in 104.8 x 241.3 mm	No	Yes	No
C5	6.38 x 11.77 in 162 x 229 mm	No	Yes	No
DL	4.33 x 8.66 in 110 x 220 mm	No	Yes	No
Custom envelopes	Minimum: 3.5 x 5.8 in 88 x 148 mm Maximum: 13 x 20 in 330 x 508 mm	No	Yes	No

A4/Letter Tray Paper Specifications

Note: The InfoPrint 20 supports two default paper groups, LTR (letter) and A4, each of which supports a slightly different set of paper sizes. The LTR paper group, which is the factory default in the U.S. and Canada, includes Executive and Statement paper sizes, but not B5–JIS or A5. The A4 group, which is the factory default in Europe and Asia, does include A5 and B5–JIS, but not Executive or Statement.

To reset the paper default, do one of the following:

- For the A4 paper group: power on the printer while pressing the **Cancel Print** key.
- For the LTR paper group: power on the printer while pressing the **Online** key.

Resetting the paper group restores **all** menu values to the factory default. Therefore, IBM recommends printing a printer configuration page before you do a reset, so you can restore old settings if necessary.

Style	Size	LTR Paper Group			A4 Paper Group		
		Duplex	SEF	LEF	Duplex	SEF	LEF
Letter	8.5 x 11 in 215.9 x 279.4 mm	Yes	Yes	Yes	Yes	No	Yes
A4	8.27 x 11.69 in 210 x 297 mm	Yes	No	Yes	Yes	Yes	Yes
B5-JIS	7.16 x 10.12 in 182 x 257 mm	Not supported			No	No	Yes
A5	5.85 x 8.27 in 148.5 x 210 mm	Not supported			No	No	Yes
Executive	7.25 x 10.25 in 184.2 x 266.7 mm	No	No	Yes	Not supported		
Statement	5.5 x 8.5 in 139.7 x 215.9 mm	No	No	Yes	Not supported		

A3/Ledger (11 x 17) Tray Paper Specifications

Note: The InfoPrint 20 supports two default paper groups, LTR (letter) and A4, each of which supports a slightly different set of paper sizes. The LTR paper group, which is the factory default in the U.S. and Canada, includes Executive and Statement paper sizes, but not B5–JIS or A5. The A4 group, which is the factory default in Europe and Asia, does include A5 and B5–JIS, but not Executive or Statement.

To reset the paper default, do one of the following:

- For the A4 paper group: power on the printer while pressing the **Cancel Print** key.
- For the LTR paper group: power on the printer while pressing the **Online** key.

Resetting the paper group restores **all** menu values to the factory default. Therefore, IBM recommends printing a printer configuration page before you do a reset, so you can restore old settings if necessary.

Style	Size	LTR Paper Group			A4 Paper Group		
		Duplex	SEF	LEF	Duplex	SEF	LEF
Letter	8.5 x 11 in 215.9 x 279.4 mm	Yes	Yes	Yes	Yes	No	Yes
Legal	8.5 x 14 in 215.9 x 355.6 mm	Yes	Yes	No	Yes	Yes	No

Style	Size	LTR Paper Group			A4 Paper Group		
		Duplex	SEF	LEF	Duplex	SEF	LEF
Folio	8.5 x 13 in 215.9 x 330.2 mm	Yes	Yes	No	Yes	Yes	No
11 x 17	11 x 17 in 279.4 x 431.8 mm	Yes	Yes	No	Yes	Yes	No
A4	8.27 x 11.69 in 210 x 297 mm	Yes	No	Yes	Yes	Yes	Yes
B5-JIS	7.16 x 10.12 in 182 x 257 mm	Not supported			No	No	Yes
B4	10.12 x 14.33 in 257 x 364 mm	Yes	Yes	No	Yes	Yes	No
A5	5.85 x 8.27 in 148.5 x 210 mm	Not supported			No	No	Yes
A3	11.69 x 16.54 in 297 x 420 mm	Yes	Yes	No	Yes	Yes	No
Executive	7.25 x 10.25 in 184.2 x 266.7 mm	No	No	Yes	Not supported		
Statement	5.5 x 8.5 in 139.7 x 215.9 mm	No	No	Yes	Not supported		

Envelope Tray Paper Specifications

Style	Size	Duplex	Short-edge feed (SEF)	Long-edge feed (LEF)
Monarch	3.875 x 7.5 in 98.4 x 190.5 mm	No	Yes	No
COM10	4.125 x 9.5 in 104.8 x 241.3 mm	No	Yes	No
C5	6.38 x 11.77 in 162 x 229 mm	No	Yes	No
DL	4.33 x 8.66 in 110 x 220 mm	No	Yes	No

2000-Sheet Input Drawer Paper Specifications

Style	Size	Duplex	Short-edge feed (SEF)	Long-edge feed (LEF)
Letter	8.5 x 11 in 215.9 x 279.4 mm	Yes	No	Yes
A4	8.27 x 11.69 in 210 x 297 mm	Yes	No	Yes

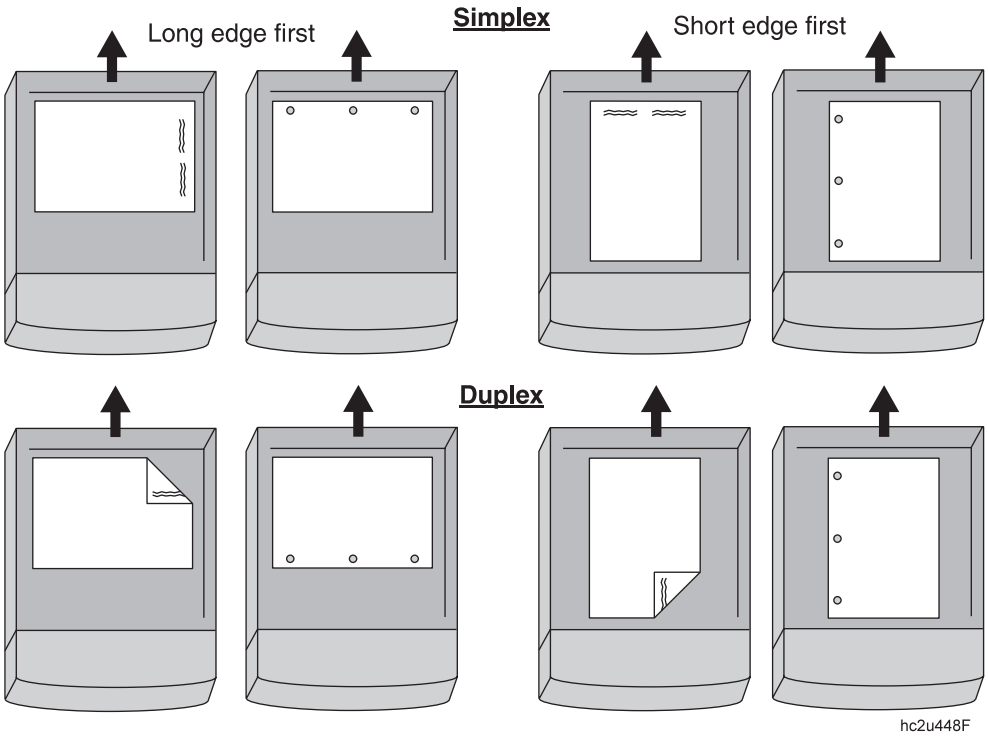
Loading Print Media into the Printer

You can add paper to your printer when the printer is off, offline, or when the READY message is displayed. If your printer has used all of the paper in the selected paper tray, 11 LOAD *paper-size* IN *tray* is displayed in the message display area, where *paper-size* is the size of paper needed and *tray* is the empty tray.

Loading Letterhead and Prepunched Paper

Your printer can print on both prepunched and preprinted paper (for example, paper with letterhead or preprinted numbers). The following illustration shows how to load these types of paper (the illustration applies to

the auxiliary tray and the 500-sheet trays):



Loading the A4/Letter Paper Tray

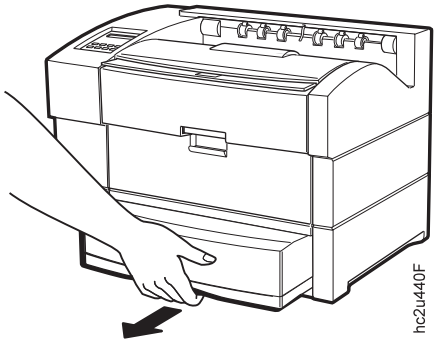
Notes

1. To load the A3/Ledger (11 x 17) tray, see “Loading the A3/Ledger (11 x 17) Paper Tray” on page 45.
2. Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

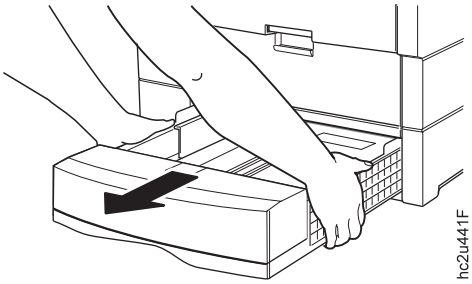
   To select a 500-sheet paper tray, set SOURCE to TRAY1, TRAY2, or TRAY3 depending on the position of the tray (see “Selecting The Default Input Tray” on page 63).

1. See “Selecting Paper and Other Printable Material” on page 34 and “A4/Letter Tray Paper Specifications” on page 37 for information on media you can load.

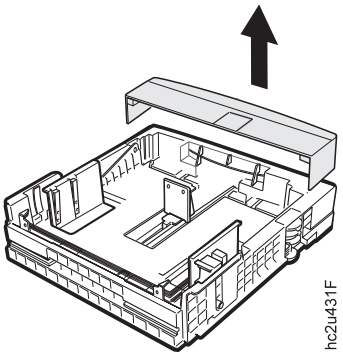
2. Pull the tray out until it stops.



3. Gently lift the tray and then remove it from the printer. Place it on a flat surface.

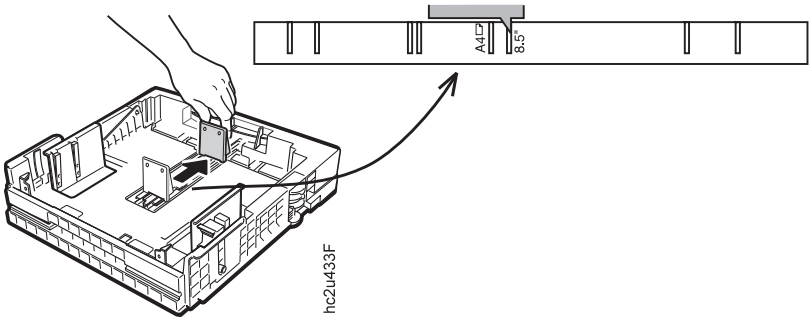


4. Remove the tray cover.

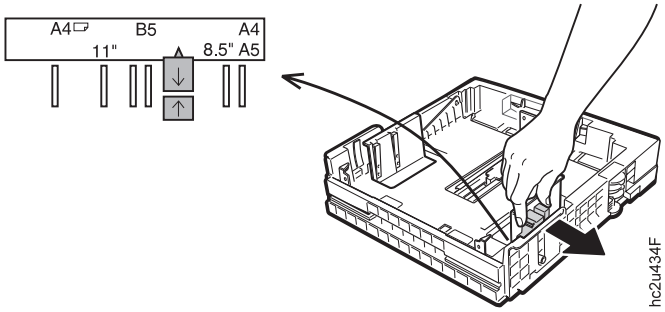


5. Gently squeeze the length guide, and then lift it up and slide it to the position for your paper size. Make sure that the guide is locked firmly in

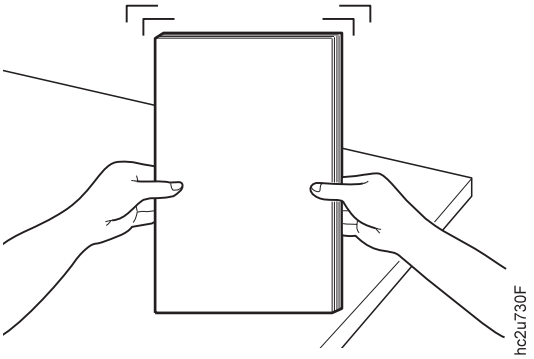
the guide hole on the bottom of the tray.



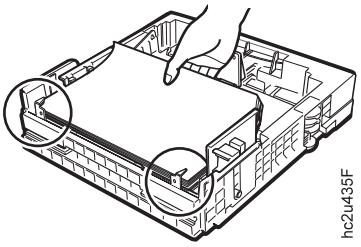
6. Gently squeeze the side guide and slide it to the position for your paper size.



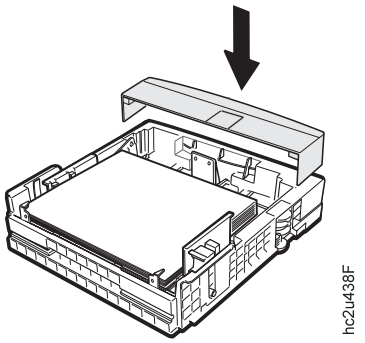
7. Prepare a stack of paper. Make sure that the tops of the sheets are properly aligned.



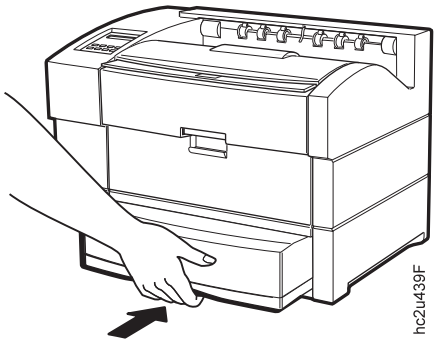
8. Insert the paper into the tray. Make sure to place the paper under all retaining clips.



9. Replace the tray cover.



10. Slide the tray into the printer until it clicks into place.



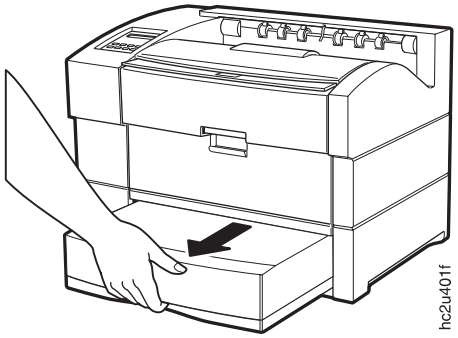
Loading the A3/Ledger (11 x 17) Paper Tray

Notes

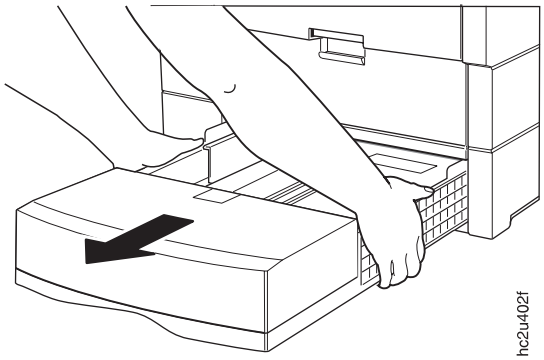
1. To load the A4/Letter tray, see “Loading the A4/Letter Paper Tray” on page 41.
2. Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

   To select a 500-sheet paper tray, set SOURCE to TRAY1, TRAY2, or TRAY3 depending on the position of the tray (see “Selecting The Default Input Tray” on page 63).

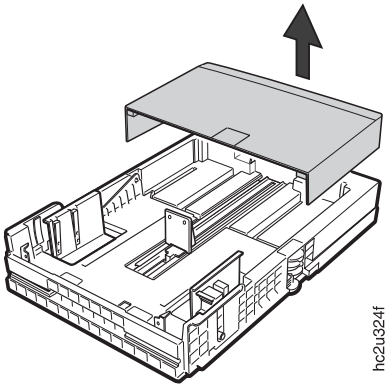
1. See “Selecting Paper and Other Printable Material” on page 34 and “A3/Ledger (11 x 17) Tray Paper Specifications” on page 38 for information on media you can load.
2. Pull the tray out until it stops.



3. Gently lift the tray and then remove it from the printer. Place it on a flat surface.

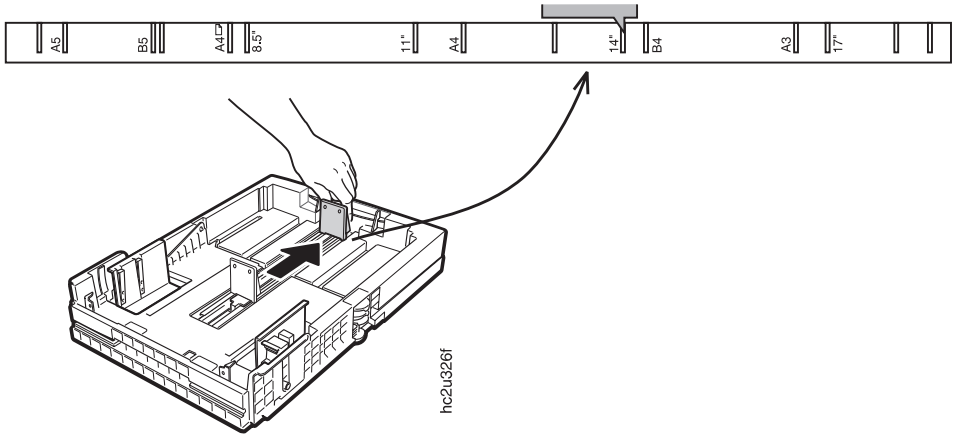


4. Remove the tray cover.

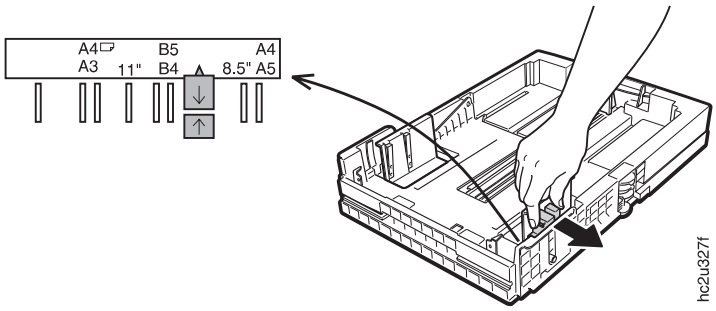


5. Gently squeeze the length guide, and then lift it up and slide it to the position for your paper size. Make sure that the guide is locked firmly in

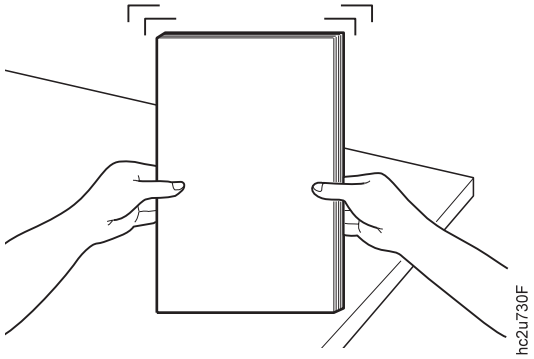
the guide hole on the bottom of the tray.



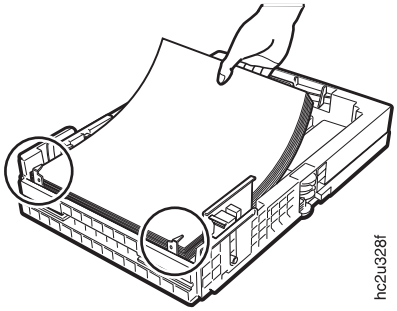
6. Gently squeeze the side guide and slide it to the position for your paper size.



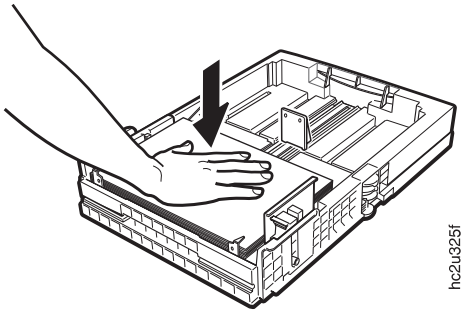
7. Prepare a stack of paper. Make sure that the tops of the sheets are properly aligned.



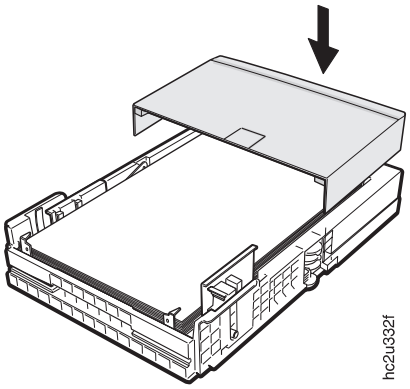
8. If you are loading A3 or 11 x 17 paper, insert the paper into the tray as shown. Make sure to place the paper under all retaining clips.



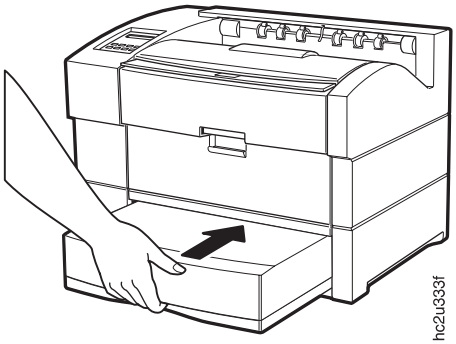
9. If you are loading A4 or Letter-size paper, insert the paper into the tray as shown. Make sure to place the paper under all retaining clips.



10. Replace the tray cover.



11. Slide the tray into the printer until it clicks into place.



Using the Auxiliary Tray

Loading Paper into the Auxiliary Tray

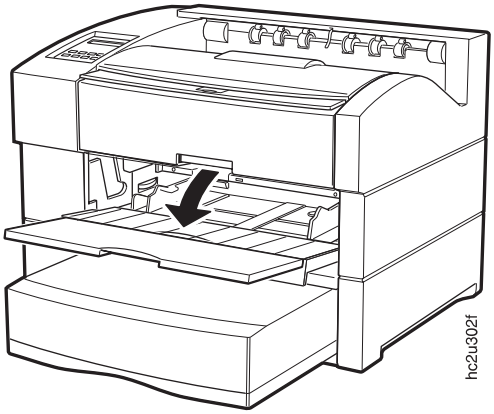
Note

Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

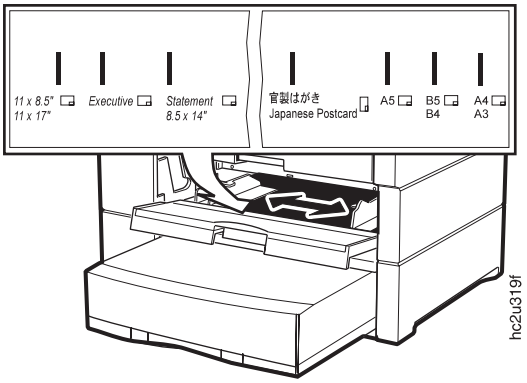
To select the auxiliary tray, set SOURCE to AUXTRAY (see "Selecting The Default Input Tray" on page 63).

Use the following procedure to load paper into the auxiliary tray:

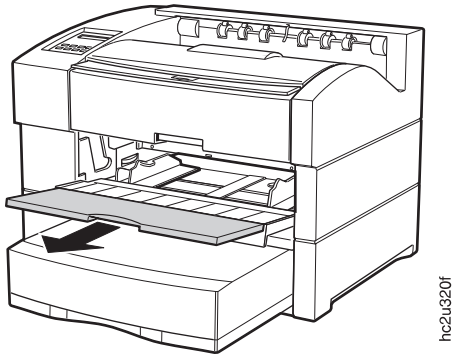
1. See “Selecting Paper and Other Printable Material” on page 34 and “Auxiliary Tray Paper Specifications” on page 36 for information on media you can load.
2. Gently pull the latch on the top of the tray to open it.



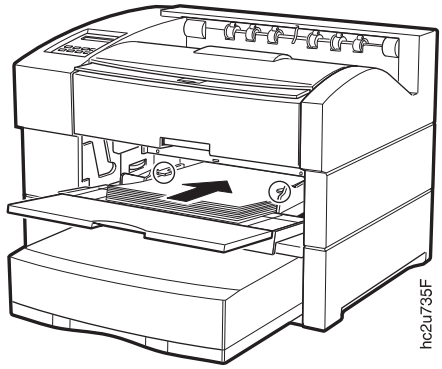
3. Adjust the paper guide to fit the size paper you intend to use.



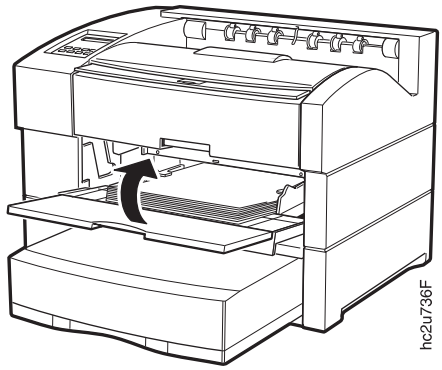
4. To use A3 or B4 size paper, pull out the paper tray extension.



5. Insert the paper into the auxiliary tray until it touches the stopper at the far end of the tray. Place the print side of the paper with its face up.



6. If the paper length is less than 210 mm (8 in.), you can close the auxiliary tray during operation.



7. Use your print application or the Paper Menu to set AUXSIZE to match the paper size you loaded in the auxiliary tray (see “Defining the Auxiliary Tray Paper Size” on page 64). Values specified in print jobs override values you set at the printer. To select the auxiliary tray as the default source tray, set SOURCE to AUXTRAY in the Paper Menu (see “Selecting The Default Input Tray” on page 63).

   If you want to feed the paper manually into the auxiliary tray, use your print application or the Paper Menu to set MANUAL to ON (see “Paper Menu” on page 90).

Loading Envelopes into the Auxiliary Tray

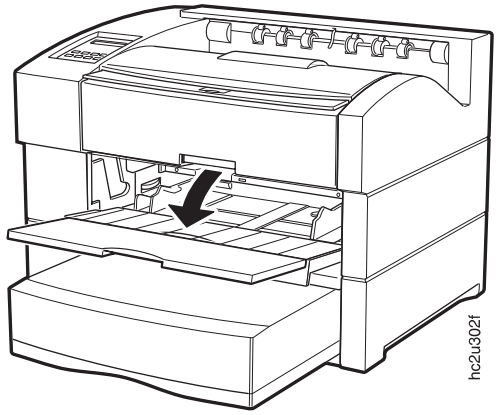
Note

Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

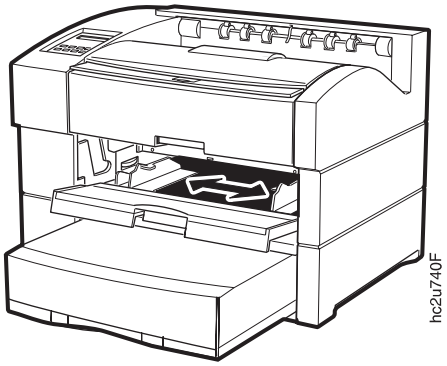
To select the auxiliary tray, set SOURCE to AUXTRAY, (see “Selecting The Default Input Tray” on page 63).

Use the following procedure to load envelopes into the auxiliary tray:

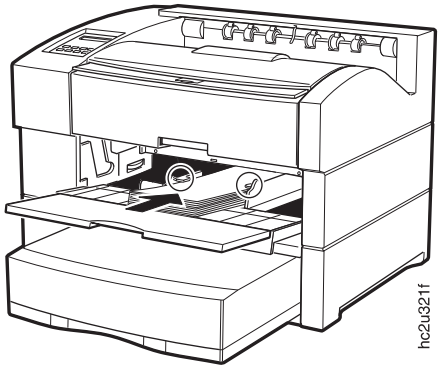
1. See “Selecting Paper and Other Printable Material” on page 34 and “Auxiliary Tray Paper Specifications” on page 36 for information on media you can load.
2. Gently pull the latch on the top of the tray to open it.

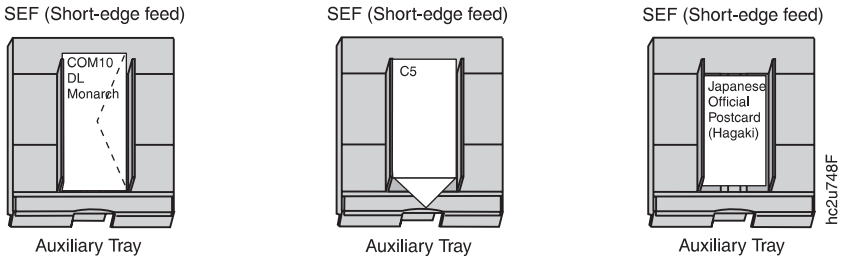


3. Adjust the paper guide to fit the envelope you intend to use.

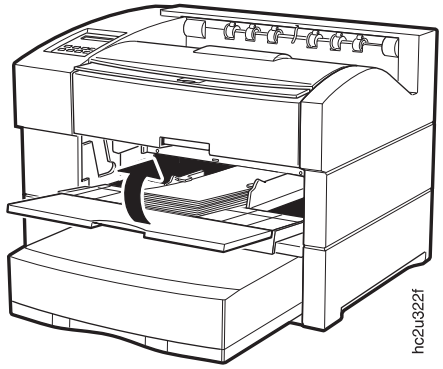


4. Insert the envelopes into the auxiliary tray until they touch the stopper at the far end of the tray. Place the print side of the envelopes face up. (The flap side should be down.)





5. If the envelope length is less than 210 mm (8 in.), you can close the auxiliary tray during operation.



6. Use your print application or the Paper Menu to set AUXSIZE to match the envelope size you loaded in the auxiliary tray (see “Defining the Auxiliary Tray Paper Size” on page 64). Values specified in print jobs override values you set at the printer. To select the auxiliary tray as the default source tray, set SOURCE to AUXTRAY in the Paper Menu (see “Selecting The Default Input Tray” on page 63).

Loading Custom Paper and Envelopes into the Auxiliary Tray

You can use the auxiliary tray to print any paper or envelope size that falls within the following range:

Minimum:
  3.5 x 5.8 in
  88 x 148 mm
Maximum:
  13 x 20 in
  330 x 508 mm

To print a custom form, do the following:

1. Set the AUXSIZE item in the Paper Menu to UNIV for paper or UNI-ENV for envelopes.
2. Make sure your print application sets the proper margins. The printer does not reflow data to fit the paper or envelope you load in the auxiliary tray.
   - To determine minimum right and left margins for custom forms subtract the width of the custom form from 330 mm or 13 in, and divide by two. For example, if your custom form is 230 mm wide, calculate the side margins as follows:

a. Subtract the custom form width from 330 mm (330 mm - 230 mm = 100 mm)
b. Divide the result by 2 (100 mm / 2 = 50 mm)

Your application would then apply at least a 50 mm right and left margin. Note that the minimum margin prints to the edge of the paper. If, for example, you want to leave a margin of 10 mm on each side, add the 10 mm to the minimum.

- To determine the minimum bottom margin, subtract the length of the custom form from 508 mm or 20 in. For example, if your custom form is 300 mm long, subtract the custom form length from 508 mm (508 mm - 300 mm = 208 mm).

  Your application would then apply at least a 208 mm bottom margin. Again, note that the minimum margin prints to the edge of the paper. If you want to leave additional space at the bottom of the page, add it to the minimum.
- For the top margin, use whatever value you would normally use. No special calculations are required.

3. If you are printing from an IPDS application:
   a. Use the Custom Forms Menu to define the custom form size. You can define up to five custom form sizes.
   b. Use the IPDS Menu to set the Custom Form item to the custom form you want to use.

   See “Defining Custom Form Sizes for IPDS” on page 66 for more information.
4. Load paper top-edge first and print side up.
5. Load envelopes with the flap-side down.
6. Always run some test prints before submitting a large job.

Loading Envelopes into the Envelope Tray

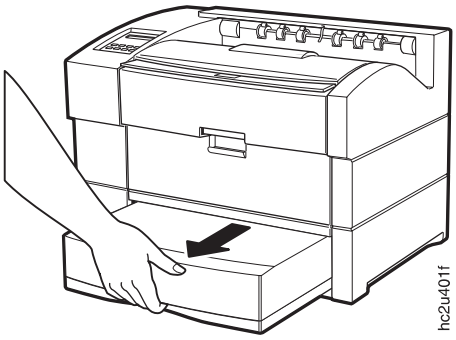
Notes

1. The printer refers to the envelope tray as Tray 1, Tray 2, or Tray 3, depending on which paper tray the envelope tray replaces.
2. Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

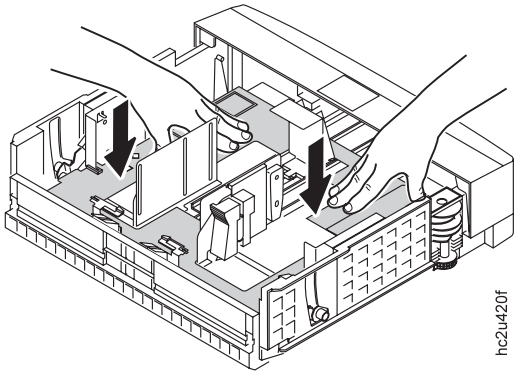
   To select the envelope tray, set SOURCE to TRAY1, TRAY2, or TRAY3 (see “Selecting The Default Input Tray” on page 63).

Use the following procedure to load envelopes into the envelope tray (the envelope tray replaces the 500-sheet tray):

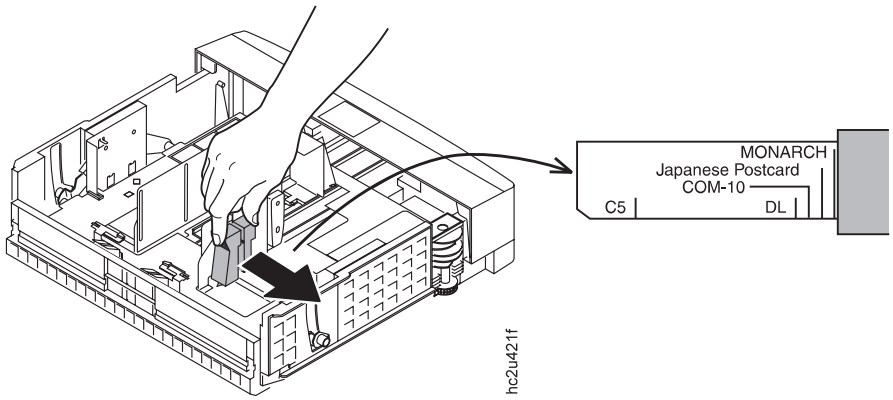
1. See “Selecting Paper and Other Printable Material” on page 34 and “Envelope Tray Paper Specifications” on page 39 for information on media you can load.
2. Remove the envelope tray from the printer and place on a flat surface.



3. Press down on the bottom plate of the envelope tray until it snaps into position.

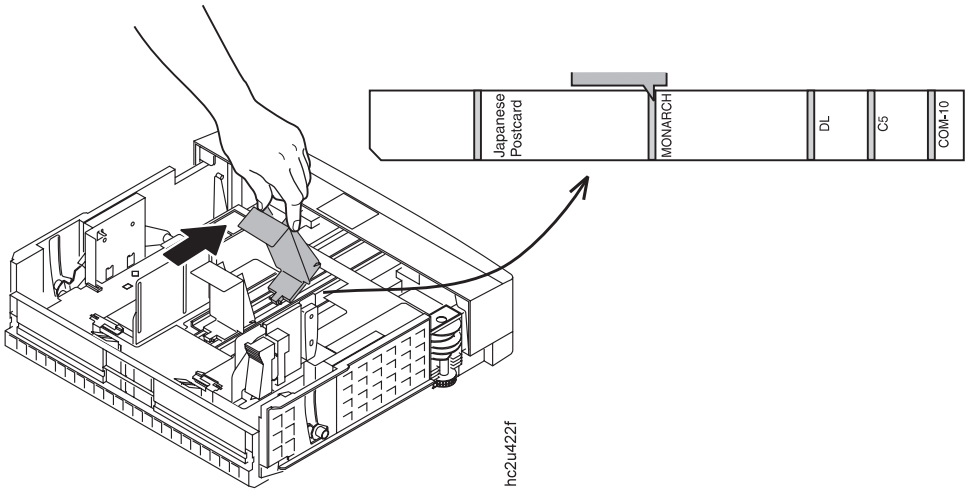


4. Squeeze the size guide and slide it to the desired envelope width.



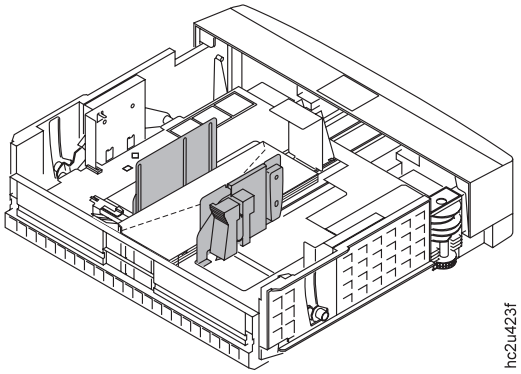
5. While tilting the end guide slightly forward, slide it to the desired envelope length. Then return the guide to its upright position.

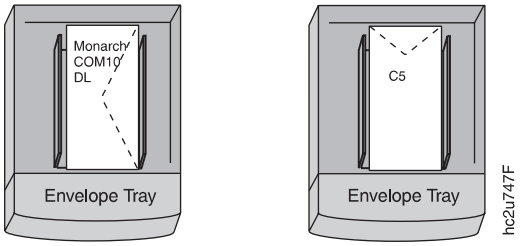
Note: Line up the pointer on the left side of the end guide with the markings on the bottom of the tray to set the envelope length.



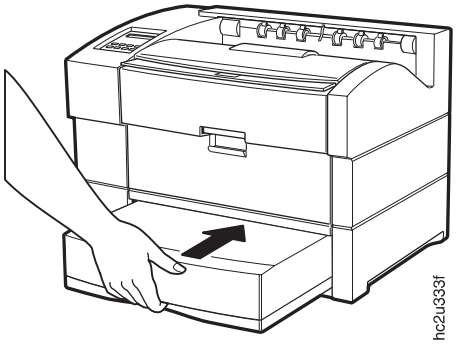
6. Load closed envelopes with the flap side down as shown in the following illustration. Make sure the stack is under the plastic tabs on the end guides.

   Note: Loading too many envelopes into the envelope tray can cause paper jams.





7. Slide the envelope tray into the printer until it clicks into place.



Loading Paper into the 2000-Sheet Input Drawer

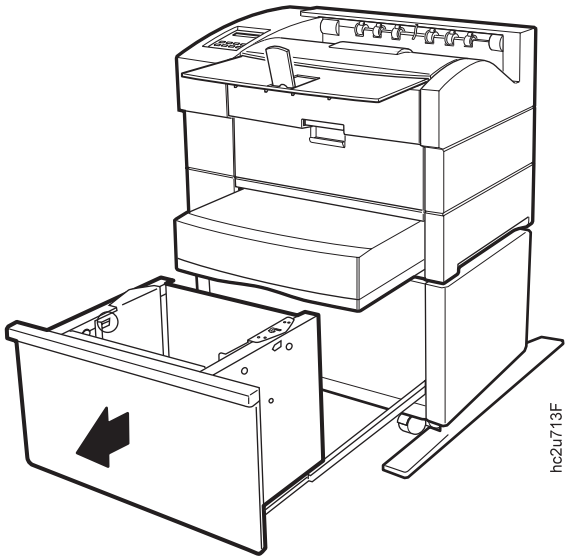
Note

1. The printer refers to the 2000-Sheet Input Drawer as Tray 2 or Tray 3, depending on whether there are one or two 500-sheet paper trays above it.
2. Many applications allow you to specify the input tray you want to use. This value will override any value set at the printer. If your application does not let you pick an input tray, use the Paper Menu to select the tray.

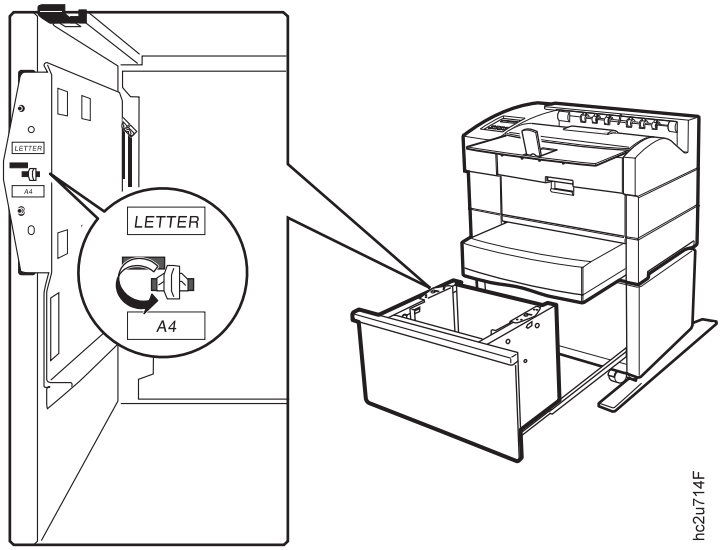
   To select the 2000-Sheet Input Drawer, set SOURCE to TRAY2 or TRAY3 (see “Selecting The Default Input Tray” on page 63).

1. See “Selecting Paper and Other Printable Material” on page 34 and “2000-Sheet Input Drawer Paper Specifications” on page 40 for information on media you can load.

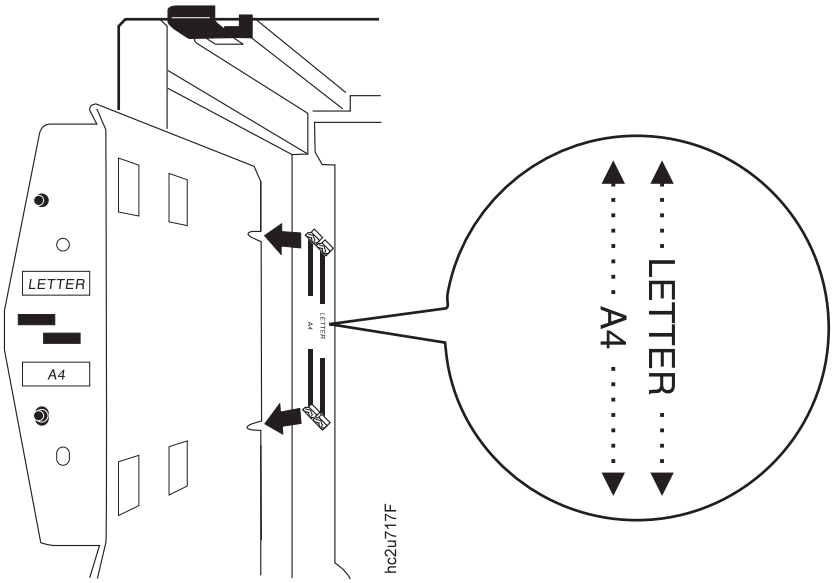
2. Open the 2000-Sheet Input Drawer.



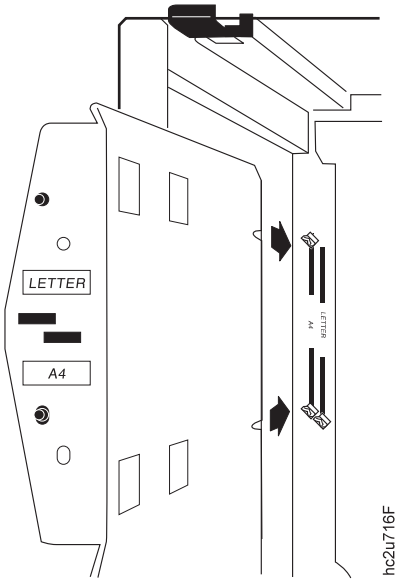
3. Verify that the paper size guides are set to the correct paper size. If not, adjust the paper size guides to your paper size, as follows:
   a. Twist the left guide locking lever, as shown, to unlock the paper size guide.



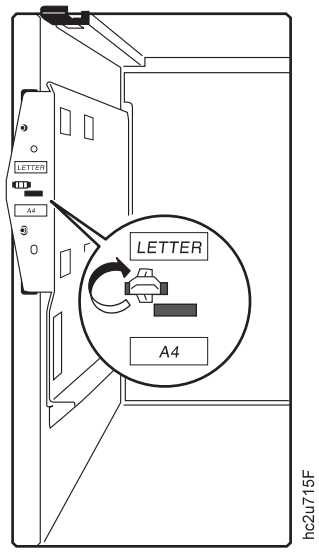
b. Raise the paper size guide out of the slots at the bottom of the drawer.



c. Line up the guide locking lever with the slot in the top of the guide that corresponds to your paper size. Lower the slots at the bottom of the paper size guide into the notches at the bottom of the drawer that correspond to your paper size.

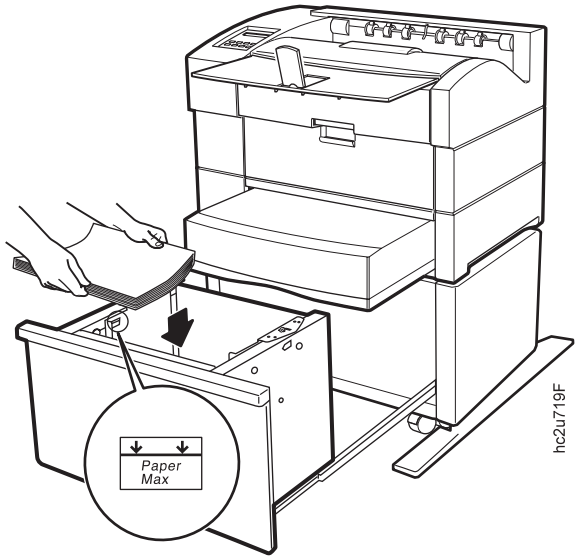


d. Twist the guide locking lever again to lock the paper size guide into place.

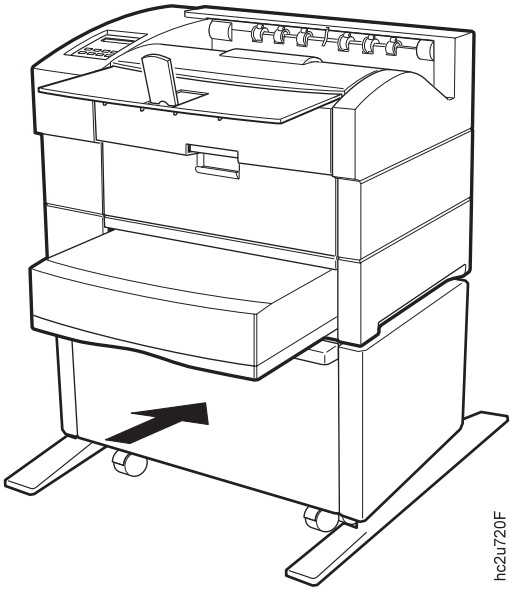


e. Repeat for the right paper size guide.

4. Insert a stack of paper into the drawer as shown. The level of paper in the drawer should not exceed the paper max line.



5. Close the 2000-Sheet Input Drawer.



Common Paper Handling Tasks

This section describes some of the basic tasks you can perform using the operator panel menus, including how to:

- Select a default input tray
- Define the media size used by the auxiliary tray
- Turn tray switching on and off
- Make simplex or duplex printing the printer default
- Define custom sizes for IPDS

Note: The printer driver or print application you use may allow you to specify values such as paper size, input tray, and manual feeding. Values set by the print application or by the printer driver override values you set at the printer.

Selecting The Default Input Tray

Situation: You want to change the default input tray for your printer.

Action:

1. Press the **Online** key until you see OFFLINE in the display.

2. Press the **Menu** key until you see PAPER MENU in the display.
3. Press the **Item** key until you see SOURCE= *source** in the display, where *source* is the current default.
4. Press the **Value** key until you see the input tray you want to use as the default.
5. Press the **Enter** key to select the new tray. An asterisk appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Note: Values specified in your print jobs override defaults set at the printer. For example, if a print job requests Tray 1, the printer will use Tray 1, even if the default tray is set to something else.

Defining the Auxiliary Tray Paper Size

Situation: You want to select a new paper size for the auxiliary tray.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see PAPER MENU in the display.
3. Press the **Item** key until you see AUXSIZE= *size** in the display, where *size* is the current default.
4. Press the **Value** key until you see the new value you want.

   Note: To select a paper size not on the menu, select UNIV. To select an envelope size not on the menu, select UNI-ENV. For more information, see "Loading Custom Paper and Envelopes into the Auxiliary Tray" on page 54.
5. Press the **Enter** key to select the new size. An asterisk appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Turning Tray Switching On or Off

Situation: You want to turn tray switching on or off. When switching is ON (the default value) the printer automatically looks in other trays for the right size of paper if the current tray is empty. Tray switching always occurs when the current tray contains the wrong size paper.

The search sequence is:

- The tray selected by the job, or the printer default tray if the job doesn't specify a tray
- Tray 3 if installed

- Tray 2 if installed
- Tray 1
- The auxiliary tray

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see PAPER MENU in the display.
3. Press the **Item** key until you see TRAY SWITCH=ON* or TRAY SWITCH=OFF in the display.
4. Press the **Value** key until you see the new value you want.
5. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Notes:

1. You can exclude trays from the tray switching search sequence that occurs when a tray is empty. See the descriptions for the Paper Menu Items TRAY1 PROT, TRAY2 PROT, TRAY3 PROT, and AUXTRAYPROT, which appear later in this table.
2. Tray switching does not occur when two trays have the same size paper but different orientations. For example, if Tray 1 and Tray 3 both have letter-size paper, but Tray 1 is short-edge feed and Tray 3 is long-edge feed, tray switching will not occur.
3. Tray switching is automatic when the printer detects the wrong size paper in the requested tray. You cannot turn this type of switching off; nor can you "protect" trays from being included in this switching sequence.
4. If the printer cannot find the correct size paper in any tray, it displays 11 `LOAD size IN tray`, where tray is the **last** tray it looked in, not necessarily the tray you specified.

Making Duplex or Simplex Printing the Printer Default

Situation: You have the duplex unit installed and you want to make duplex printing or simplex printing the printer default.

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see PAPER MENU in the display.
3. Press the **Item** key until you see DUPLEX= *ON** or DUPLEX=*OFF* in the display.
4. Press the **Value** key until you see the new value you want.

5. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
6. To restore the printer to READY status, press the **Online** key.

Notes:

1. Values set in print jobs (either by the print application or by the printer driver) override values you set at the printer. If a print job specifies simplex printing and the printer default is duplex, the printer honors the print job setting and prints on one side only.
2. The BINDING item on the Paper Menu lets you specify how you want duplex jobs to print. If BINDING is set to LONG (the default value) the job prints as if the paper is to be bound along the long edge of the paper. (On the left for portrait documents, along the top for landscape documents.) If you set BINDING to SHORT, the job prints as if the paper is to be bound along the short edge of the paper. (On the top for portrait documents, on the left for landscape documents.)
3. If you install the duplex unit, you can also use your print driver to request job offsetting. Note, however, that custom forms cannot be offset **unless** the job is sent from an IPDS application (not PostScript or PCL) and the form width is less than 297 mm (11.69 in).

Defining Custom Form Sizes for IPDS

Situation: You want to define a custom form size for IPDS jobs.

Note: You can define up to five custom forms. The following procedure shows how to define the first one (FORM1).

Action:

1. Press the **Online** key until you see OFFLINE in the display.
2. Press the **Menu** key until you see CUSTOM FORMS MENU in the display.
3. Select the unit of measure.
   a. Press the **Item** key until you see FORM1UNITS=*MM** or FORM1UNITS=*IN** in the display.
   b. Press the **Value** key until you see the new value you want (MM or IN).
   c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
4. Define the form length.
   a. Press the **Item** key until you see FORM1 LEN= *nn** in the display.
   b. Press the **Value** key until you see the new value you want.
   c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
5. Define the form width.

a. Press the **Item** key until you see FORM1 WIDTH=*nn** in the display.
b. Press the **Value** key until you see the new value you want.
c. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.

6. Specify the form on the IPDS Menu.
   a. Press the **Menu** key until you see IPDS MENU in the display.
   b. Press the **Item** key until you see CUSTOM FORM=n* in the display.
   c. Press the **Value** key until you see CUSTOM FORM=1* in the display.
   d. Press the **Enter** key to select the new setting. An asterisk appears next to the value, showing that it is active.
7. To restore the printer to READY status, press the **Online** key.

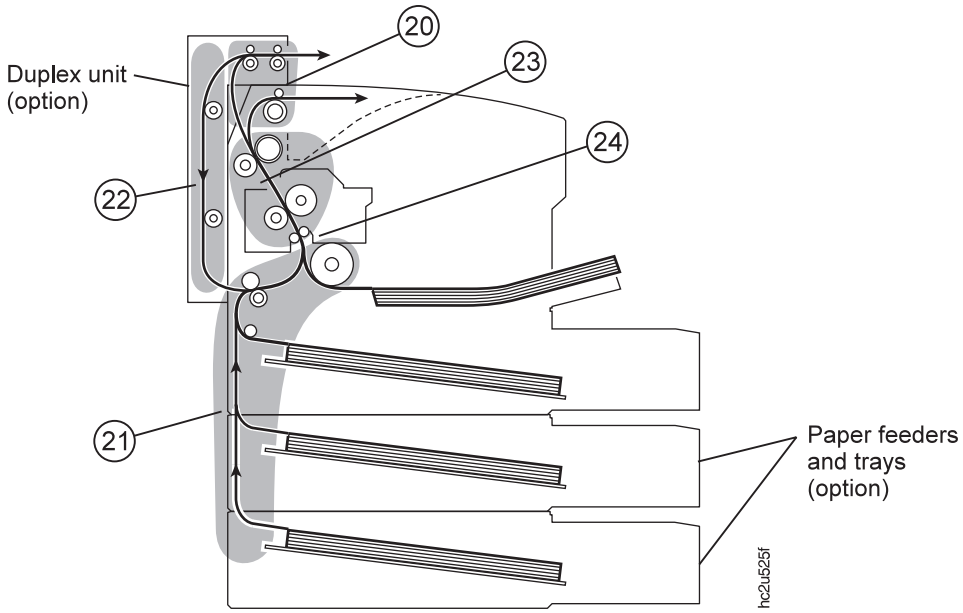
Notes:

1. Custom forms wider than 297 mm (11.69 in) cannot be offset using the duplex unit.
2. Custom forms can be printed only from the auxiliary tray. Set the AUXSIZE item in the Paper Menu to UNIV for paper or UNI-ENV for envelopes. See "Loading Custom Paper and Envelopes into the Auxiliary Tray" on page 54 for more information.

Chapter 5. Clearing Jams

When paper gets jammed inside the printer, printing stops and an error message indicates the position of the jam.

Error message	Check the following locations...
20 PAPER JAM	Around the paper exit area (see “Main Paper Path Jams” on page 71)
21 PAPER JAM	Between the paper trays and toner cartridge (see “Main Paper Path Jams” on page 71)
22 PAPER JAM	Around the duplex unit (see “Duplex Unit Jams” on page 80)
23 PAPER JAM	In the fuser area. First see “Main Paper Path Jams” on page 71. If that does not clear the jam, see “Fuser Area Jams” on page 77.
24 PAPER JAM	Between tray 1 and the toner cartridge (see “Main Paper Path Jams” on page 71). This message is frequently caused by a sheet not cleared at a previous jam.
26 PAPER JAM	In the 2000-Sheet Input Drawer (see “2000-Sheet Input Drawer Jams” on page 83)



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Typical Causes of Paper Jams

The most common causes of paper jams are:

- Paper is not loaded correctly.
- The print media does not conform to specifications.
- The paper guides are not adjusted for the current paper size.
- The paper is wrinkled or curled.
- The printer is not level.

Handling Precautions

When removing jammed paper, make sure that no paper scraps or paper dust remain in the printer. Paper remnants in the printer can become a fire hazard. If paper cannot be removed or is tightly wound around the fuser or a roller, do not try to remove it by force. Contact your dealer or an authorized service representative.

A high-temperature warning label is affixed to the fuser and its peripheral parts to indicate that these parts should not be touched. Please do not remove this label.

Do not try to remove paper by force. If paper is hard to see, hard to grasp, or wrapped tightly around a component, contact your dealer or an authorized service representative.

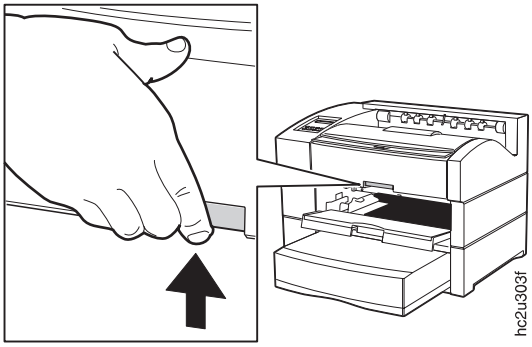
To prevent tearing the paper, remove jammed paper slowly and carefully.

Procedure

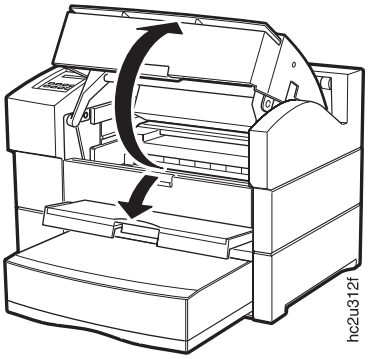
The following sections describe how to clear paper jams from different parts of the printer. When the printer detects a jam, it displays a message. Note, however, that when paper gets jammed in one area of the paper path, it often gets jammed in other areas. Therefore it is a good idea to check the entire paper path whenever you see a paper jam message.

Main Paper Path Jams

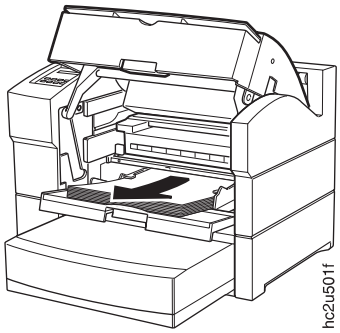
1. Press the release button on the top cover.



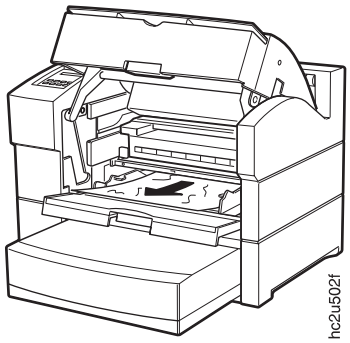
2. Open the top cover.



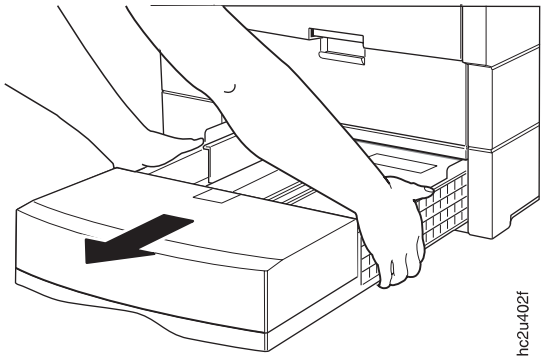
3. If paper was fed from the auxiliary tray, remove all paper from the tray.



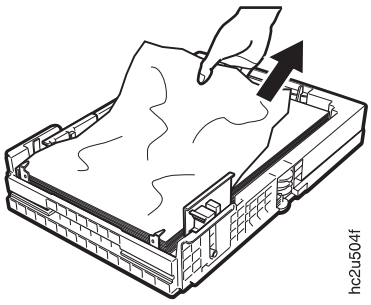
4. Check the far end of the auxiliary tray (inside the printer), and remove any jammed paper.



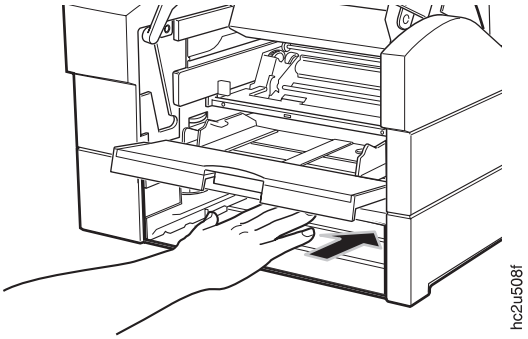
5. If paper was fed from the 500-sheet tray, pull the 500-sheet tray out until it stops, then gently lift it up and remove it from the printer.



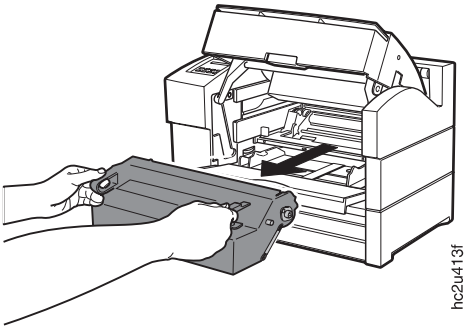
6. If there is wrinkled paper in the tray, remove it.



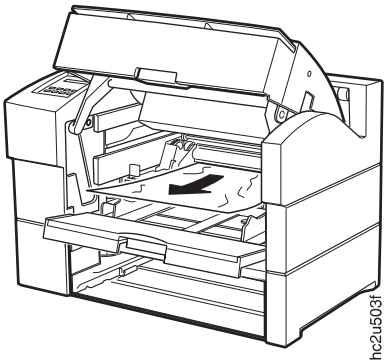
7. Remove any jammed paper from inside the tray area.



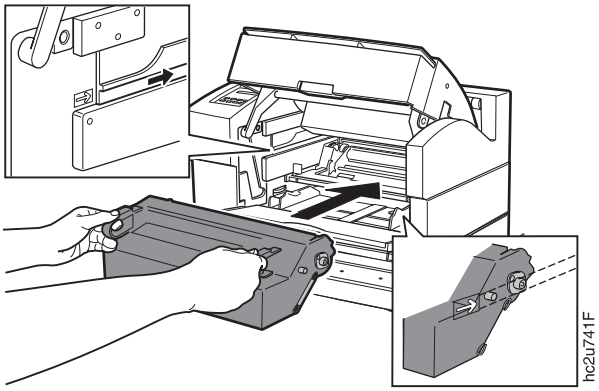
8. Remove the toner cartridge.



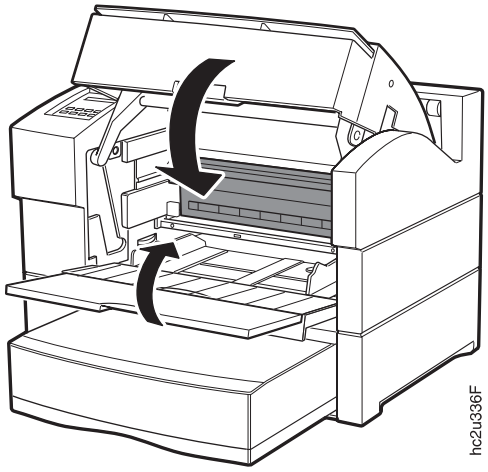
9. Check the area where the toner cartridge was located, and remove any jammed paper.



10. Grip the toner cartridge as shown. Slide the cartridge into the printer guide channels. To make sure the toner cartridge is secure, gently press both ends of the cartridge until the cartridge stops.

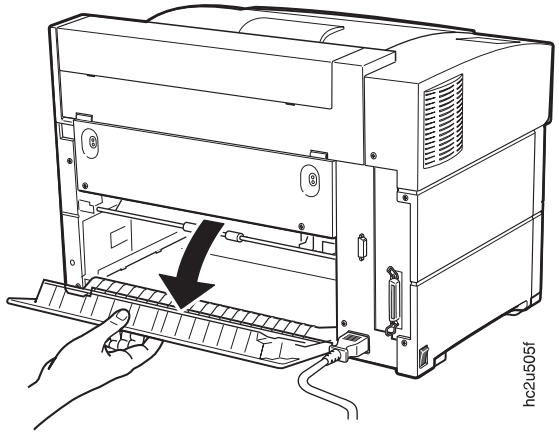


11. Slide the tray back into the printer until it clicks into place. Then close the auxiliary tray and the top cover.

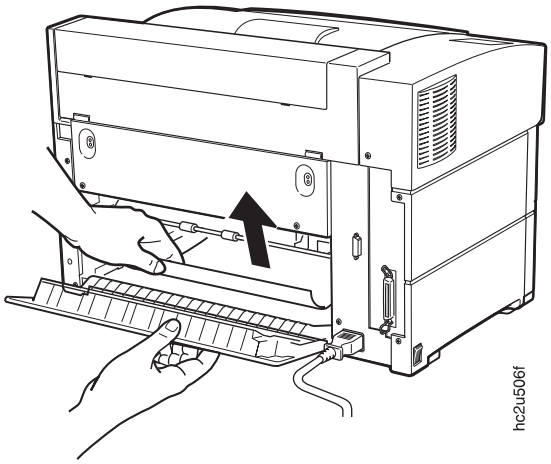


12. Open the rear cover of the printer.

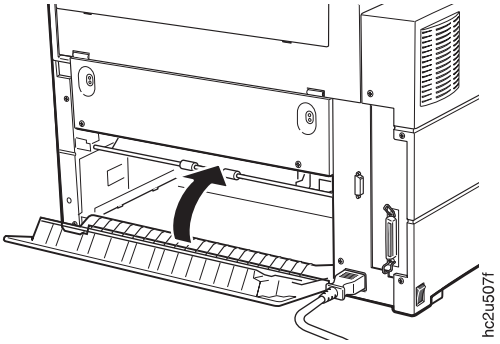
    Note: Tray 2 and Tray 3 rear covers cannot be opened. If paper was fed from Tray 2 or Tray 3, clear the jam by removing the tray and reaching inside to remove any jammed paper.



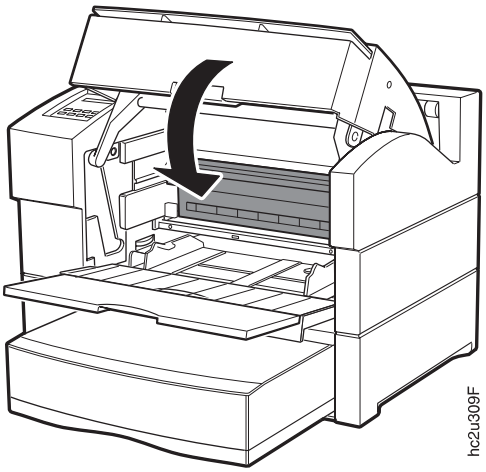
13. Remove any jammed paper. Hold the rear cover open and pull the paper out.



14. Close the rear cover. Press in the center of the cover to ensure that it closes properly.



15. Open and close the top cover of the printer to clear the jam message.



16. Verify that READY appears on the operator panel.

Note: The next sheet that emerges from the printer after a paper jam may be stained, but staining should disappear after a few sheets.

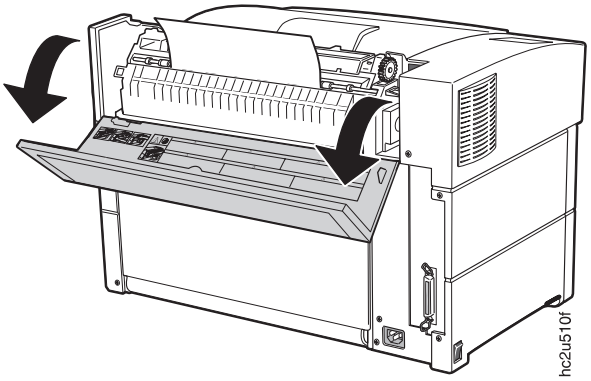
Fuser Area Jams

1. If the printer has a duplex unit, remove it. See “Removing the Duplex Unit” on page 161.
2. Open the fuser cover.

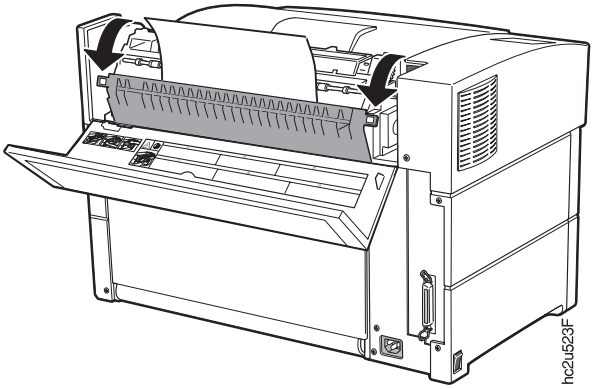
CAUTION:

<2-25> High temperature; switch off the printer and allow at least 20 minutes for parts in this area to cool before handling.

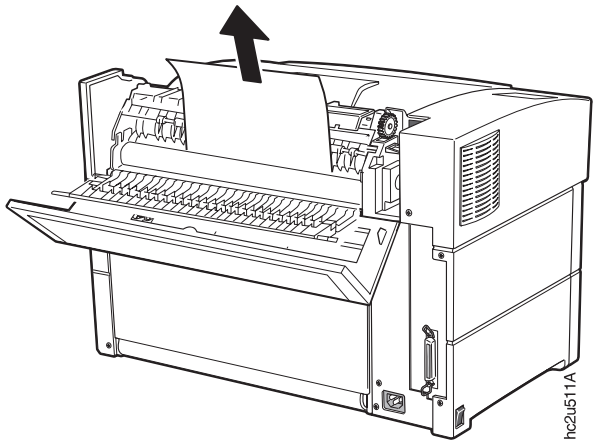
hcsf0225



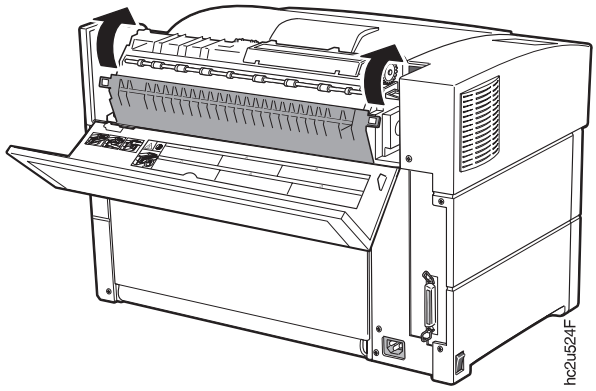
3. Open the fuser jam access cover.



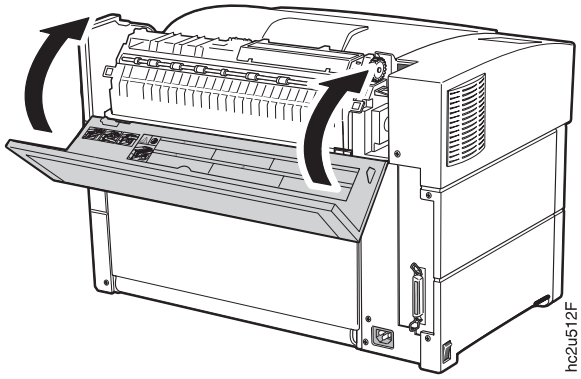
4. Remove any jammed paper.



5. Close the fuser jam access cover.



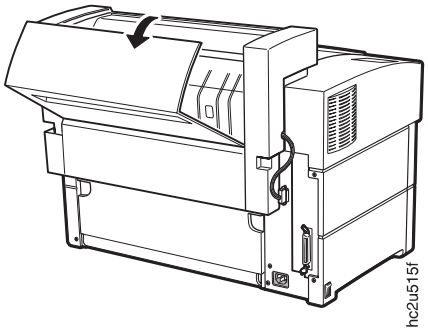
6. Close the fuser cover.



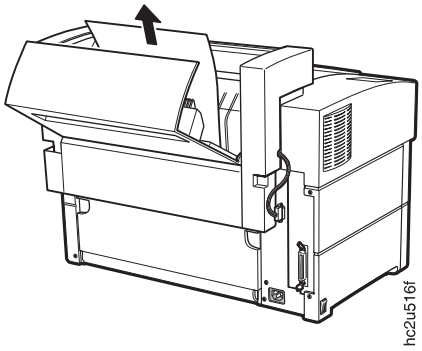
7. If you removed the duplex unit, reattach it now. See “Installing The Duplex Unit” on page 157.
8. Verify that READY appears on the operator panel.

Duplex Unit Jams

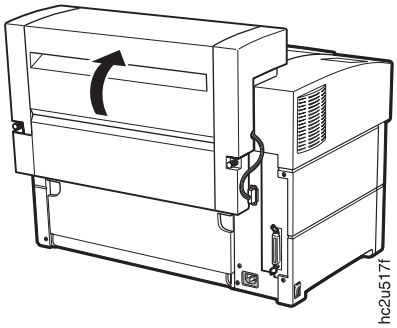
1. Pull the top cover of the duplex unit towards you to open it.



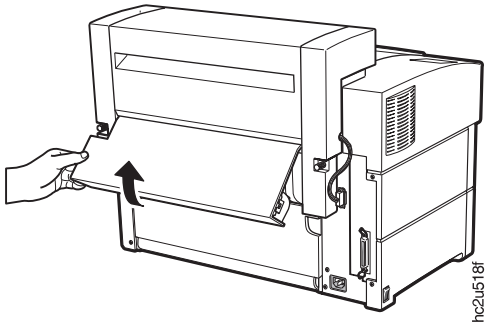
2. Carefully pull out any jammed paper, grasping the paper at both sides.



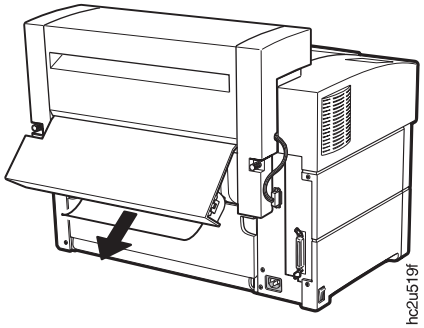
3. Close the top cover of the duplex unit.



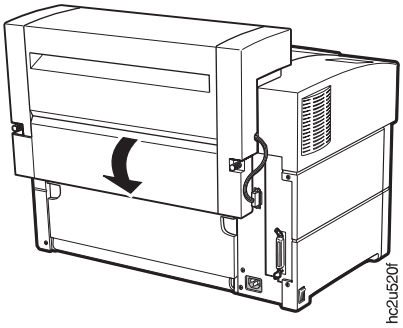
4. Pull the bottom cover of the duplex unit towards you to open it.



5. Carefully pull out any jammed paper, grasping the paper at both sides.

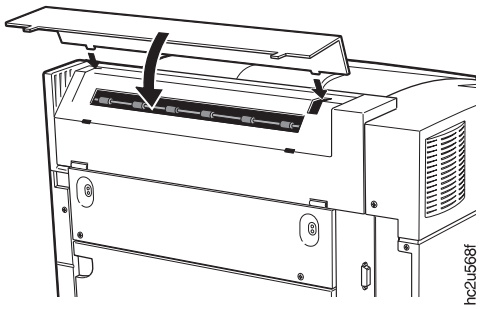


6. Close the bottom cover of the duplex unit.



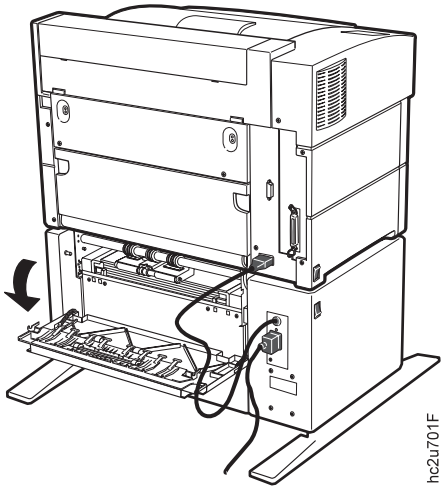
Attention: If you removed the duplex unit and you are not reinstalling it, reinstall the filler panel. If the duplex unit is removed, do not use the

printer without the filler panel.

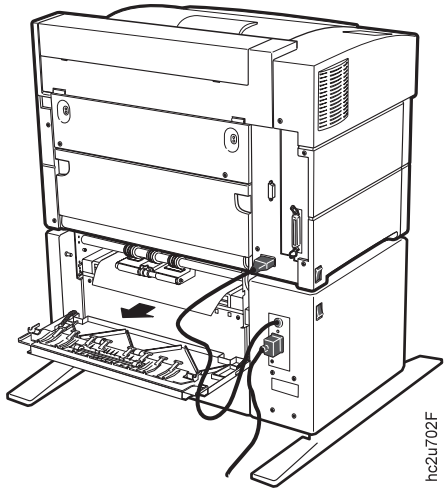


2000-Sheet Input Drawer Jams

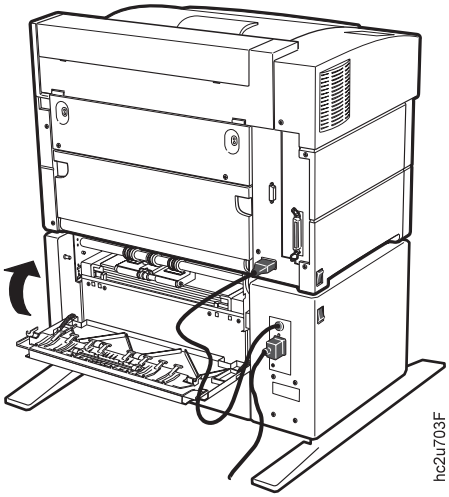
1. Open the rear cover of the 2000-sheet input drawer.



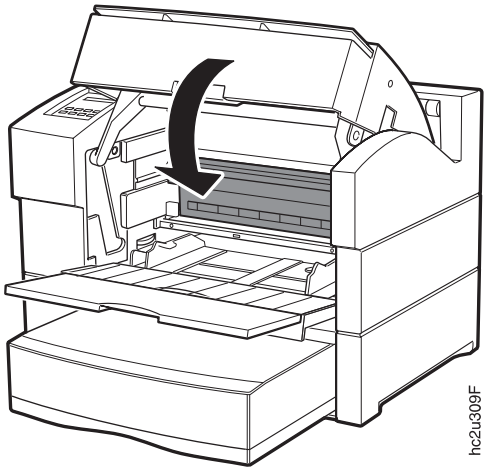
2. Remove any jammed paper.



3. Close the rear cover.



4. Open and close the top cover of the printer to clear the jam message.



Chapter 6. Operator Panel Menus

Important!

This chapter describes the functions available from the printer menus.

1. To see a list of menus you can access and options you have installed, print a printer configuration page. See "Printing the Printer Configuration Page" on page 25. You can use the printer configuration page as a menu map. The *IBM InfoPrint 20: Quick Reference Card* also contains a menu map.
2. Note that several of the menus and menu items listed in this book appear on your operator panel only if you have a particular option installed. For example, the Ethernet Menu appears only if you have installed the Ethernet network interface card. The DUPLEX item on the Paper Menu appears only if you have installed the duplex unit.
3. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

The following table describes the basic function of each menu and lists the page where you can find more information.

Use this menu	To do this	See page
TEST MENU	Print configuration pages, font lists, and printer test pages; print a hexadecimal dump for troubleshooting purposes.	88
RESET MENU	Reset the printer to cancel a job or to use factory defaults.	90
PAPER MENU	Select input trays, paper sizes, duplex printing options, and other paper handling options.	90
CUSTOM FORMS MENU	Define custom paper sizes for IPDS jobs.	94
CONFIG MENU	Define how the printer handles paper jams and certain other error conditions; define toner density, power savings mode, and print quality.	95
MEMCONFIG MENU	Define whether the printer saves PCL5e and PostScript information when it switches ports.	97
PARALLEL MENU	Define how the printer handles jobs sent through the parallel port, including the data stream, bi-directional communications, and the timeout setting.	98

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Use this menu	To do this	See page
PCL MENU	Define how the printer handles PCL5e jobs, including number of copies, page size, page orientation, lines per page, font source, and default font.	99
PS MENU	Define how the printer handles PostScript jobs, including number of copies and whether error messages are printed.	103
IPDS MENU	Define how the printer handles IPDS jobs.	104
TOKEN RING MENU	Define the data stream, timeout, and network address values for the token-ring attachment.	110
ETHERNET MENU	Define the data stream, timeout, and network address values for the Ethernet attachment.	113
COAX SCS MENU	Define how the printer handles SCS jobs sent through the coax attachment.	116
TWINAX SCS MENU	Define how the printer handles SCS jobs sent through the twinax attachment.	120
COAX SETUP MENU	Configure the coax attachment.	122
TWINAX SETUP MENU	Configure the twinax attachment.	124
COAX DSC/DSE MENU	Define how the printer handles DSC/DSE jobs sent through the coax attachment.	126
MACHINE INFO MENU	Displays page counts, the error log, and the toner and fuser usage counters.	128
LANGUAGE MENU	Define the language the printer uses to display operator panel messages and menus.	129

Test Menu

Use the Test Menu to display basic information about the printer and to perform basic troubleshooting tasks.

Notes:

1. To perform the action associated with the menu item you select, press the **Enter** key.
2. The actual menu items you see depend on what options you have installed. To find out what options you have installed, print a printer configuration page. See “Printing the Printer Configuration Page” on page 25 .
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

4. If you see the message WAIT FOR IDLE PRINTER while performing a Test Menu item, wait until you see the READY prompt and try again. If the PCL Menu item AUTO RESET is set to OFF, you may not get the READY prompt even if you see the WAIT FOR IDLE PRINTER message. In this case, set AUTO RESET to ON to restore Test Menu functions.

Test Menu Item	Description
CONFIG PAGE	Prints the printer configuration page. Make sure Letter or A4 paper is loaded in the default tray. See “Selecting The Default Input Tray” on page 63 for more information.
PRINT PS FONTS	Prints a list of PostScript fonts installed on the printer. See “Printing a List of PostScript Fonts” on page 30 for more information.
PRINT PCL FONTS	Prints a list of PCL5e fonts installed on the printer. See “Printing a List of PCL5e Fonts” on page 29 for more information.
PRINT PCL DEMO	Prints the demo page.
CONTINUOUS TEST	Prints continuous test pages. To stop the test, press the **Cancel Print** key.
PRINT TR CONFIG	Prints a configuration page for the token-ring network interface card. See “Printing the Token-Ring Network Interface Card Configuration Page” on page 29 for more information.
PRINT EN CONFIG	Prints a configuration page for the Ethernet network interface card. See “Printing the Ethernet Network Interface Card Configuration Page” on page 29 for more information.
PRINT IPDS FONTS	Prints a list of IPDS fonts installed on the printer.
PRINT SCS CHARS	Prints the SCS code page (character set).
FORMAT DISK	Formats the optional hard drive.
ONLINE HEX PRT CANCEL HEX PRT	ONLINE HEX PRINT prints a hexadecimal dump for troubleshooting purposes. Use this option for PostScript or PCL jobs sent over the parallel, Ethernet, or token-ring attachments. After you select this item, it changes to CANCEL HEX PRT. To cancel the dump, select CANCEL HEX PRT. **Note:** Do not use ONLINE HEX PRT for IPDS jobs.
CX HEX PRT CANCEL CX PRT	CX HEX PRT prints a hexadecimal dump for troubleshooting problems with non-IPDS jobs sent over the coax attachment. After you select this item, it changes to CANCEL CX PRT. To cancel the dump, select CANCEL CX PRT. **Note:** Do not use CX HEX PRT for IPDS jobs.
TX HEX PRT CANCEL TX PRT	TX HEX PRT prints a hexadecimal dump for troubleshooting problems with non-IPDS jobs sent over the twinax attachment. After you select this item, it changes to CANCEL TX PRT. To cancel the dump, select CANCEL TX PRT. **Note:** Do not use TX HEX PRT for IPDS jobs.

Reset Menu

Use the Reset Menu to cancel print jobs or to restore printer settings to the factory defaults.

Notes:

1. To perform the action associated with the menu item you select, press the **Enter** key.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Reset Menu Item	Description
RESET PRINTER	Cancels the current print job.
FACTORY DEFAULT	Resets settings to the factory defaults. Note that some values do not get reset. These values include LANGUAGE, AUXSIZE, PCL SAVE, PS SAVE, BI-DI, IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, and MAC ADDRESS. **Note:** To reset all values other than the internet addresses (IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, and MAC ADDRESS), do one of the following: • For the A4 paper group: switch on the printer power while simultaneously pressing the **Cancel Print** key. Hold the **Cancel Print** key until you see the message COLD RESET A4. • For the Letter paper group: switch on the printer power while simultaneously pressing the **Online** key. Hold the **Online** key until you see the message COLD RESET LTR. IBM recommends printing a printer configuration page before you do a reset so you can restore old settings if necessary.

Paper Menu

Use the Paper Menu to select input trays, paper sizes, duplex or simplex printing, and other paper handling options. The following table describes the settings you can change from the Paper Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values set in print jobs (either by the print application or the printer driver) override values you set at the printer.

3. The actual menu items you see depend on what options you have installed. To find out what options you have installed, print a printer configuration page. See “Printing the Printer Configuration Page” on page 25 for more information.
4. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.
5. See “Common Paper Handling Tasks” on page 63 for examples of changing values on the Paper Menu.

Paper Menu Item	Value	Description
SOURCE	TRAY1* TRAY2 TRAY3 AUXTRAY	Selects the default paper tray to use. Only installed trays appear in the list. • TRAY1 is the standard 500-sheet input tray. It can be A4/Letter size or A3/Ledger (11 x 17) size. • TRAY2 and TRAY3 are optional input trays; you can install one or two additional 500-sheet trays, one additional 500-sheet tray and the 2000-Sheet Input Drawer, or just the 2000-Sheet Input Drawer. If you do not install them, they will not be in the list. If you install one additional tray, it is TRAY2. If you install two additional trays, the middle tray is TRAY2 and the lower tray is TRAY3. The 2000-Sheet Input Drawer must be the lowest tray. • AUXTRAY is the flip-down tray in the front of the printer. **Notes:** 1. If the 2000-Sheet Input Drawer is installed, it is the default tray. 2. If the envelope tray is installed, it is referred to as TRAY1, TRAY2, or TRAY3, depending on which paper tray it replaces.
DUPLEX	OFF* ON	Specifies whether to print on one side or both if the duplex unit is installed. See “Making Duplex or Simplex Printing the Printer Default” on page 65.

Paper Menu Item	Value	Description
BINDING	LONG* SHORT	Specifies how to print pages in duplex mode. • LONG—prints as if the paper is to be bound along the long edge of the paper. (On the left for portrait documents, on the top for landscape documents.) • SHORT—prints as if the paper is to be bound along the short edge of the paper. (On the top for portrait documents, on the left for landscape documents.)
TRAY SWITCH	ON* OFF	Specifies whether or not to switch to another paper tray if the current one is empty or runs out of paper. (Tray switching always occurs when the requested tray contains the wrong size paper.) • ON—specifies that if the current tray is empty, the printer will automatically look in other trays for the right size paper. The search sequence is: – The tray selected by the job, or the printer default tray if the job doesn't specify a tray – Tray 3 if installed – Tray 2 if installed – Tray 1 – Auxiliary tray • OFF—specifies no switching when a tray is empty. **Notes:** 1. You can exclude trays from the tray switching search sequence that occurs when a tray is empty. See the descriptions for the Paper Menu Items TRAY1 PROT, TRAY2 PROT, TRAY3 PROT, and AUXTRAYPROT, which appear later in this table. 2. Tray switching does not occur when two trays have the same size paper but different orientations. For example, if Tray 1 and Tray 3 both have letter-size paper, but Tray 1 is short-edge feed and Tray 3 is long-edge feed, tray switching will not occur. 3. Tray switching is automatic when the printer detects the wrong size paper in the requested tray. You cannot turn this type of switching off; nor can you "protect" trays from being included in this switching sequence. 4. If the printer cannot find the correct size paper in any tray, it displays 11 `LOAD size IN tray`, where tray is the **last** tray it looked in, not necessarily the tray you specified.

Paper Menu Item	Value	Description
BLANK PG	PRINT* NO PRT	Specifies whether or not to print simplex or duplex sheets that contain no data. • PRINT—print blank sheets. • NO PRT—do not print blank sheets.
TRAY RENUM	OFF* 1<>2 1<>3	Specifies tray renumbering: • OFF—no tray renumbering • 1<>2—tells the printer to treat TRAY1 as TRAY2, and TRAY2 as TRAY1. This option displays when two trays (not three) are installed. • 1<>3—tells the printer to treat TRAY1 as TRAY3, and TRAY3 as TRAY1. This option displays only when three trays are installed. **Note:** Tray renumbering does not apply to PostScript jobs.
MANUAL	OFF* ON	Specifies whether or not paper is to be fed manually from the auxiliary tray: • OFF—paper feeding is automatic, not manual. • ON—paper feeding is manual, one sheet at a time. Messages on the operator panel prompt you for each sheet. Press the **Continue** key to print the sheet.
PCL ORIENT	P* L	Specifies the default page orientation for PCL jobs. • P—portrait (taller than wide) • L—landscape (wider than tall)

Paper Menu Item	Value	Description
AUXSIZE	LTR-LEF* LTR-SEF LEGAL FOLIO 11X17 A4-LEF A4-SEF JB5-LEF JB5-SEF B4 A5 A3 EXEC STATMNT MONARCH HAGAKI COM10 C5 DL UNIV UNI-ENV	Defines the paper or envelope size being used in the auxiliary tray. LEF means long-edge feed. SEF means short-edge feed. For more information about loading paper in the auxiliary tray, see “Auxiliary Tray Paper Specifications” on page 36 and “Loading Paper into the Auxiliary Tray” on page 49.
TRAY1 PROT TRAY2 PROT TRAY3 PROT AUXTRAYPROT	OFF* ON	Specifies whether to include a tray in the auto-switching sequence. If a tray is not in the auto-switching sequence, its paper will not be selected when another tray runs out of paper. Tray switching is automatic when the printer detects the wrong size paper in the requested tray. You cannot “protect” trays from being included in this switching sequence. See the description of TRAY SWITCH for more information about tray switching. • OFF—include the tray in the auto-switching sequence. • ON—do not include the tray in the auto-switching sequence.

Custom Forms Menu (IPDS)

Use the Custom Forms Menu to define custom paper sizes for IPDS jobs. The following table describes the settings you can change from the Custom Forms Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that is now active.
2. This menu appears only when you have the IPDS option installed.

3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.
4. See “Defining Custom Form Sizes for IPDS” on page 66 for an example of defining a custom form.
5. Custom forms can only be fed from the auxiliary tray.

Custom Forms Menu Item	Value	Description
FORM1UNITS	MM* IN	Specifies the unit of measurement for the custom form.
FORM1 LEN	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 148 to 508 millimeters. If FORMUNITS is set to inches, acceptable values are 5.9 to 20.0 inches.
FORM1 WIDTH	nnn nn.n	Specifies the width of the custom form. If FORMUNITS is set to millimeters, acceptable values are 88 to 330 millimeters. If FORMUNITS is set to inches, acceptable values are 3.5 to 13.0 inches.
FORM2UNITS FORM2 WIDTH FORM2 LEN FORM3UNITS FORM3 WIDTH FORM3 LEN FORM4UNITS FORM4 WIDTH FORM4 LEN FORM5UNITS FORM5 WIDTH FORM5 LEN		Specifies up to four more custom forms. See FORM1UNITS, FORM1 LEN, and FORM1 WIDTH for a description of each field.

Configuration (Config) Menu

Use the Configuration Menu to configure the printer. The following table describes the settings you can change from the Configuration Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.

2. Values set in print jobs (either by the print application or the printer driver) override values you set at the printer.
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Config Menu Item	Value	Description
JAMRECOVERY	OFF* ON	Sets the JAMRECOVERY function on or off for non-IPDS jobs. (For IPDS jobs, the host always does a recovery.) • OFF—the printer does not keep an image of the printed page. Jammed pages might not be reprinted. • ON—the printer keeps the image for a printed page until the page successfully exits the printer. Jammed pages are automatically reprinted. Selecting ON can decrease the performance of your printer.
AUTOCONTINU	ON* OFF	Sets the auto-continue function on or off. • ON—following certain types of errors (such as memory allocation errors), the printer pauses for thirty seconds, and then continues running. Since some errors may cause data to be lost, setting AUTOCONTINU to ON can cause the printer to continue printing without operator intervention even though data has been lost. • OFF—following the same types of errors, the printer stops and waits for operator intervention. (Generally, the operator either presses the **Enter** key to continue printing, or the **Cancel Print** key to cancel the current job.)
DENSITY	n	Sets the toner density. n can be from 0 to 4 where 0 is the least dense (lightest) and 4 is the most dense (darkest). 1 is the default value. **Notes:** 1. Increasing density may make documents appear darker; however, it also uses more toner, which decreases the page yield of your toner cartridge. 2. Decreasing toner density may improve image clarity. 3. Density has little effect on solid area density (large black areas), unless QUALITY is set to ECONO on the Config Menu.
PWRSAV	30 MIN* 1HR 2HR 3HR 4HR OFF 15 MIN	Specifies how long the printer is inactive before it goes into power-savings (sleep) mode. In this mode, the printer powers down most of its systems and therefore requires extra time to warm up when the next print is requested.

Config Menu Item	Value	Description
QUALITY	NORMAL* REFINE ECONO 1200	Specifies the print quality. • NORMAL—normal quality. Use for text documents. • REFINE—smooths edges. Use for documents that include images, shading, and complex graphics. • ECONO—reduces the amount of toner used in large black areas, which saves toner. • 1200—emulates 1200 dpi resolution **Notes:** 1. 1200 dpi emulation requires a minimum of 8MB of memory in simplex mode and 12MB in duplex mode. See "Memory Requirements" on page 5. 2. 1200 dpi emulation is not supported for IPDS. If you select 1200, the printer will still print IPDS jobs at a lower resolution; however, for performance reasons, IBM recommends that you use your driver or the operator panel to explicitly set QUALITY to NORMAL, REFINE, or ECONO (if available) for IPDS. (Driver settings override menu settings.) 3. ECONO, REFINE, and 1200 may not appear on the operator panel if you use only a parallel attachment and if the 2000-Sheet Input Drawer is not installed. If they do not appear on the panel and you want to use them, please contact IBM technical support (see "Technical Support" on page 4).
TONER LOW	STOP* CONT	Specifies whether or not to stop printing when the toner cartridge is low on toner. • STOP—stop printing. • CONT—continue printing.

Memory Configuration (Memconfig) Menu

Use the Memory Configuration Menu to define whether or not the printer saves data stream information when it switches ports. The following table describes the settings you can change from the Memory Configuration Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.

2. If you do not have enough memory to support context saving, this menu will not appear. 600 DPI requires at least 12MB; 1200 DPI emulation requires at least 24MB. Larger paper sizes, page protection, and duplex printing may further increase your memory requirements (see “Memory Requirements” on page 5). To find out how much memory you have installed, print a printer configuration page. See “Printing the Printer Configuration Page” on page 25 for more information.
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Memconfig Menu Item	Value	Description
PCL SAVE	OFF* ON	Specifies whether or not the printer saves PCL5e information (downloaded fonts, macros, patterns) when it switches from PCL5e to another data stream: • OFF—the printer does not save data. • ON—the printer saves data. **Note:** Changing the PCL SAVE item causes the printer to restart. Therefore, IBM recommends you wait until no jobs are queued before you change this item.
PS SAVE	OFF* ON	Specifies whether or not the printer saves PostScript information (downloaded fonts, macros, patterns) when it switches from PostScript to another data stream: • OFF—the printer does not save data. • ON—the printer saves data. This option appears only when your printer has enough memory installed. See “Memory Requirements” on page 5 for more information about memory requirements. **Note:** Changing the PS SAVE item causes the printer to restart. Therefore, IBM recommends you wait until no jobs are queued before you change this item.

Parallel Menu

Use the Parallel Menu to define how the printer handles communications over the parallel attachment. The following table describes the settings you can change from the Parallel Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Parallel Menu Item	Value	Description
PERSONALTY	AUTO* PCL PS	Specifies how the printer treats jobs it receives over the parallel attachment. • AUTO—the printer determines if the data stream is PCL5e or PostScript and handles it accordingly. This is the recommended value. • PCL—the printer treats all data streams as PCL5e. • PS—the printer treats all data streams as PostScript.
BI-DI	ON* OFF	Turns bi-directional communications over the parallel attachment on or off. • OFF—the printer receives messages from the host, but does not send messages back. • ON—the printer receives and sends messages to the host.
PORT TMEOUT	nnn	Specifies how many seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other attachments for jobs, if other attachments are installed. The valid range is 5 to 300 seconds. The default value is 15 seconds.

PCL Menu

Use the PCL Menu to define the way the printer handles PCL5e jobs. The following table describes the settings you can change from the PCL Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values set in PCL5e print jobs (either by the print application or the printer driver) override PCL Menu values you set at the printer.
3. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

PCL Menu Item	Value	Description
PAGEPROT	AUTO* ON	Sets page protection: • AUTO—the printer protects the minimum amount of memory necessary. • ON—the printer reserves enough memory to process an entire page without compression before it prints the page. This can help in the rare case where the printer compression scheme causes a loss of quality in complex graphics. This setting is available only when the printer has enough memory. See “Memory Requirements” on page 5 for more information.
COPIES	nnn	Specifies how many copies of each job to print. nnn can be from 1 to 999. 1 is the default.
PAGESIZE	LETTER* LEGAL FOLIO 11X17 A4 B5-JIS B4 A5 A3 EXEC STATMNT MONARCH HAGAKI COM10 C5 DL UNIV UNI-ENV	Specifies the default page size for PCL5e jobs.
EDGE-EDGE	OFF* ON	Turns PCL edge-to-edge printing on or off. • OFF—the printer maintains a border of 4 mm on all four paper sides. • ON—The printer allows printing up to the physical page size. **Note:** To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF; use ON only when necessary.
FORM	nnn LINES	Specifies the number of lines per page the printer prints before it starts a new page. nnn can be from 5 to 128. 60 is the default for Letter-size paper; 64 is the default for A4-size paper.

PCL Menu Item	Value	Description
FNTSRC	INTERNAL* DISK FLASH SOFT	Specifies which font source the printer checks first for a specified font: • INTERNAL—use the printer's resident fonts first • DISK—use fonts stored on the printer hard drive first • FLASH—use fonts stored on the flash SIMM first • SOFT—use downloaded fonts first
FONTNUM	nnn	Specifies the default font. nnn is the number of the font. The default is 0. To display a list of available fonts and their corresponding numbers, select PRINT PCL FONTS from the Test Menu. See "Printing a List of PCL5e Fonts" on page 29 for more information.
PTSIZE	nnn.nn	Specifies the point size of the default font, if it is an outline font. Valid values are 4 to 999.75. The default is 12.
PITCH	nn.nn	Specifies the pitch to use for the default font, if the font is bitmapped (raster). Valid values are .44 to 99.99. The default is 10.

PCL Menu Item	Value	Description
SYMSET	ROMAN-8* ISO L1 ISO L2 ISO L5 PC-8 PC-8D/N PC-850 PC-852 PC8-TK WIN L1 WIN L2 WIN L5 DESKTOP PS TEXT VN INTL VN US MS PUBL MATH-8 PS MATH VN MATH PI FONT LEGAL ISO 4 ISO 6 ISO 11 ISO 15 ISO 17 ISO 21 ISO 60 ISO 69 WIN 3.0	Specifies the symbol set to use.

PCL Menu Item	Value	Description
AUTO RESET	ON* OFF	Specifies whether a PCL reset (reset of the PCL environment and printing of any partial pages) occurs at the PORT TMEOUT value. • ON*—Reset occurs at the PORT TMEOUT values, which are set on each printer attachment menu. All PCL settings, such as orientation and paper source, will be reset to the power-on default values. Downloaded fonts that have NOT been designated as “permanent” will also be lost. Partial pages, such as the last page of a job sent without an end-of-forms command, will be ejected. The default of ON is recommended for most situations. • OFF—The above resets will NOT occur at the PORT TMEOUT. This allows compatibility with applications designed for HP printers with this behavior. It is not recommended for users printing with InfoPrint 20 drivers. **Notes:** 1. When the printer actually switches to another port, the PCL settings will be lost, regardless of the AUTO RESET value. 2. AUTO RESET is NOT relevant to datastream switching. If the printer switches datastreams before the PORT TMEOUT, the PCL settings will only be saved if PCL SAVE=YES. See “Memory Configuration (Memconfig) Menu” on page 97.

PS Menu

Use the PS Menu to define the way the printer handles PostScript jobs. The following table describes the settings you can change from the PS Menu. An asterisk (*) next to a value in the table indicates the factory default.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values set in PostScript print jobs (either by the print application or the printer driver) override PS Menu values you set at the printer.
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

PS Menu Item	Value	Description
PAGEPROT	AUTO* ON	Sets page protection: • AUTO—the printer protects the minimum amount of memory necessary. • ON—the printer reserves enough memory to process an entire page without compression before it prints the page. This can help in the rare case where the printer compression scheme causes a loss of quality in complex graphics. This setting is available only when the printer has enough memory. See “Memory Requirements” on page 5 for more information.
COPIES	nnn	Specifies how many copies of each job to print. nnn can be from 1 to 999. 1 is the default.
PRINT ERRS	OFF* ON	Specifies how the printer handles PostScript errors: • OFF—the printer cancels the job, but does not print an error page. • ON—the printer prints an error page and cancels the job.
EDGE-EDGE	ON* OFF	Turns edge-to-edge printing on or off. • ON—The printer allows printing up to the physical page size. • OFF—the printer maintains a border of 4 mm on all four paper sides. **Notes:** 1. IBM recommends leaving EDGE-EDGE set to ON when you use IBM printer drivers for InfoPrint 20. If you use non-IBM printer drivers, you may need to set EDGE-EDGE to off to prevent toner contamination in the printer. 2. The IBM printer driver cannot override the OFF setting. If you set EDGE-EDGE to OFF, you cannot print edge-to-edge.

IPDS Menu

The following table describes the settings you can change from the IPDS Menu. An asterisk (*) next to a value in the table indicates the factory default. The IPDS Menu appears only if you have the IPDS SIMM installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values specified in IPDS print jobs override IPDS Menu values set at the printer.
3. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

IPDS Menu Item	Value	Description
PAGEPROT	AUTO* ON	Sets page protection: • AUTO—the printer uses the minimum amount of memory necessary to print a page. • ON—the printer reserves enough memory to process an entire page without compression before it prints the page. This can help in the rare case where the printer compression scheme causes a loss of quality in complex graphics. This setting is available only when the printer has enough memory. See "Memory Requirements" on page 5 for more information.

IPDS Menu Item	Value	Description
DEF CD PAG	nnnn	Specifies the default code page. The default value is code page 037. 037 US, Canada, Netherlands, Portugal 038 US English ASCII 260 Canadian French 273 Austrian/German 274 Belgium 276 Canadian French 277 Danish/Norwegian 278 Finnish/Swedish 280 Italian 281 Japanese 284 Spanish 285 UK English 286 Austrian/German (alternate) 287 Danish/Norwegian (alternate) 288 Finnish/Swedish (alternate) 290 Japanese/Katakana 297 French 420 Arabic 423 Greek 424 Hebrew 500 Belgium, Switzerland / International 870 Latin 2 Multilingual 871 Icelandic 875 Greek 880 Cyrillic 892 OCR - A 893 OCR - B 905 Turkish 1025 Cyrillic 1026 Turkish
EMULATION	4028* 4320	Specifies the printer to emulate. Select 4320 only if you have the appropriate level of PSF software installed. (Consult your system administrator.)
DEF FGID	nnnnn	Specifies the default FGID (Font Typeface Global Identifier), which identifies the default resident font the printer uses. The default FGID is 416, which specifies Courier 10 point as the default resident font. To display the list of fonts and FGIDs the printer supports, print out a list of IPDS resident fonts (see “Printing a List of IPDS Resident Fonts” on page 30).
CPI	nn.n	Selects characters-per-inch (pitch) for the default font. Valid values are 5.0 to 30.0 in tenths of an inch. The default value is 10.

IPDS Menu Item	Value	Description
VPA CHK	ON* OFF	Turns valid printable area checking on or off. • ON—the printer checks for pels that fall outside the intersection of the logical and physical pages. If pels fall outside the area, the printer reports an error to the host if the IPDS Exception Handling Control command setting requires error reporting. • OFF—The printer does not report pels outside the valid printable area.
X-OFFSET	nnn	Sets the print offset in the X (horizontal) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing to the right of the physical point of origin. Negative values move the starting point for printing to the left. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well. **Note:** The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.
Y-OFFSET	nnn	Sets the print offset in the Y (vertical) direction. nnn can be from -999 to 999. The default setting is 0 pels. Positive values move the starting point for printing down from the physical point of origin. Negative values move the starting point for printing up. The physical point of origin is towards the top left corner of a portrait page. If you rotate the page, the physical point of origin rotates as well. **Note:** The X-OFFSET and Y-OFFSET options are intended to allow line printer print jobs to fit on a page where edge-to-edge printing is not possible. Using X-OFFSET and Y-OFFSET is NOT recommended when generating new applications, especially duplex applications.

IPDS Menu Item	Value	Description
PAGE	WHOLE* COMP1 COMP2 PRINT	Determines how data is positioned on the page. • WHOLE—IPDS whole page (default). The printer does not move or compress the page. This is the preferred method; all page positioning and formatting is done at the application level on the host. The PRINT, COMP1, and COMP2 options may alter the appearance of the page, or may not be compatible with predecessor products (for example, 3116, 3916), especially when combined with duplex and other IPDS MENU page format adjustments such as X-OFFSET and Y-OFFSET. PRINT, COMP1, and COMP2 are included to allow line printer jobs to fit on a page where edge-to-edge printing was not possible; they are not recommended for use in generating new applications. • PRINT—IPDS print page. If the page origin falls within the unprintable area, the origin of the page is moved to the inside edge of the nearest unprintable area border. If the origin violates the unprintable area on two edges, it is moved to the nearest inside corner of the unprintable area. If the origin violates only one edge of the unprintable area, then the origin is adjusted to avoid only that area. If a location adjustment is made, the printed page shifts in the direction of the adjustment. There is no compression, so the opposite-edge data may be pushed off the page. **Note:** PRINT requires EDGE-EDGE set OFF to work. Any data placed in this unprintable area is lost. Also, PRINT will not work on envelopes or media overlays (overlays that are part of the base page, not the overlays included in the variable print data). • COMP1—COMP1 format uses PRINT page as a base, and then compresses the spacing between text lines generated by the IPDS Begin Line command. Its primary purpose is to compress Begin Line text data into a page with unprintable borders. continued on next page...

IPDS Menu Item	Value	Description
PAGE	PRINT WHOLE* COMP1 COMP2	(continued from previous page...) • COMP2—COMP2 format uses PRINT page as a base, and then adds compression IPDS Begin Line command (see COMP1) and of the following vertical text positioning commands: Absolute Move Baseline, Relative Move Baseline, Draw B Axis Rule, Draw I Axis Rule. **Note:** Alignment problems can occur if you select COMP1 or COMP2 and you print jobs that mix text with images, graphics, or bar codes. Problems arise when text positioning commands are used to move across text or into non-text (image, graphic, or bar-code) areas. Both COMP1 and COMP2 reduce the line spacing of text only and have no effect on non-text data. To minimize this problem, select COMP1, because Begin Line commands are not normally used to move across or into non-text areas. If, however, the application you want to compress does not use Begin Line commands, you should select COMP2.
EDGE-EDGE	OFF* ON	Turns edge-to-edge printing on or off. • OFF—the printer maintains a no-print border of 4 mm on all four paper sides. • ON—The printer allows printing up to the physical page size. **Notes:** 1. To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF for IPDS; use ON only when necessary. 2. The IPDS Menu item EDGE-EDGE applies to IPDS data only. To specify edge-to-edge printing for non-IPDS data sent over the coax attachment, use the EDGE-EDGE item on the Coax Setup Menu. To specify edge-to-edge printing for non-IPDS data sent over the twinax attachment, use the EDGE-EDGE item on the Twinax Setup Menu.
FONT SUB	OFF* ON	Turns font substitution on or off. • OFF—if a job requests a font that is not loaded on the printer, the printer generates an IPDS NACK message and the host holds the job. • ON—if a job requests a font that is not loaded on the printer, the printer attempts to substitute another font.

IPDS Menu Item	Value	Description
EARLY COMPL	OFF* ON	Turns early print completion on or off for IPDS data sent over the twinax attachment. To turn early completion on or off for non-IPDS data over the coax attachment, use the EARLY COMPL item on the Coax Setup Menu. EARLY COMPL displays on the IPDS Menu only when the twinax network card is installed. • OFF—the printer waits until the job is physically complete to signal the host that the job is complete. • ON—the printer signals the host that the job is complete as soon as the IPDS data is formatted. Setting EARLY COMPL=ON may improve print performance, but may also degrade recovery and cause lost data from some printing problems, such as jams.
IPDS PORT	COAX* TX ETHER TRING	Specifies the attachment you use for IPDS jobs. **Note:** You can print IPDS from more than one port; setting this item, therefore, does not restrict you from printing from multiple ports.
CUSTOM FORM	1* 2 3 4 5	Specifies the custom form to use. The Custom Forms Menu lets you specify up to five custom forms. See "Defining Custom Form Sizes for IPDS" on page 66 for information on defining custom forms.

Token Ring Menu

Important!

For information about configuring the token-ring attachment, please see *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide*, which comes with the token-ring network interface card. "Chapter 9. Configuring Printer Network Addresses" on page 185 describes how to define the IP address, default gateway address, and subnet mask from the operator panel.

Use the Token Ring Menu to configure the token-ring attachment. The following table describes the settings you can change from the Token Ring Menu. An asterisk (*) next to a value in the table indicates the factory default. The Token Ring Menu appears only if you have the token-ring attachment installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that is now active.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Token Ring Menu Item	Value	Description
PERSONALTY	AUTO* PCL PS IPDS	Specifies how the printer treats jobs it receives over the token-ring attachment: • AUTO—the printer examines the data stream and handles it accordingly. • PCL—the printer treats all data streams as PCL5e. • PS—the printer treats all data streams as PostScript. • IPDS—the printer treats all data streams as IPDS. This option appears only if the IPDS SIMM is installed.
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other attachments for jobs, if other attachments are installed. Valid values are 5 to 300. The default is 15 seconds.
TCP/IP	ON* OFF	Turns TCP/IP communications on or off. • ON—enables TCP/IP communications. • OFF—disables TCP/IP communications. **Note:** If TCP/IP is OFF, the following menu items do not appear: IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, BOOTP, and DHCP.
IP ADDRESS	nnn.nnn.nnn.nnn	Specifies the printer's IP address. Consult your network or LAN administrator before changing this value. See "Chapter 9. Configuring Printer Network Addresses" on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.
SUBNET MASK	nnn.nnn.nnn.nnn	Specifies the printer's subnet mask. Consult your network or LAN administrator before changing this value. See "Chapter 9. Configuring Printer Network Addresses" on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.

Token Ring Menu Item	Value	Description
GATEWAY ADDRESS	nnn.nnn.nnn.nnn	Specifies the IP address of the default gateway. Consult your network or LAN administrator before changing this value. See “Chapter 9. Configuring Printer Network Addresses” on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.
BOOTP	IFNO ADDR* ON OFF	Specifies whether the token-ring network interface card sends bootp requests to the server to have an IP address assigned to the printer. • IFNO ADDR—specifies that the token-ring network interface card sends bootp requests **only** if the address is not already set at the printer. • ON—specifies that the token-ring network interface card sends bootp requests. • OFF—specifies that the token-ring network interface card should not send bootp requests. **Notes:** 1. This menu item appears only when TCP/IP is ON. 2. The number of bootp requests is determined by a setting on the token-ring network interface card; the default is three.
DHCP	IFNO ADDR* ON OFF	Specifies whether the token-ring network interface card sends DHCP requests to the server to have an IP address assigned to the printer. • IFNO ADDR—specifies that the token-ring network interface card sends DHCP requests **only** if the address is not already set at the printer. • ON—specifies that the token-ring network interface card sends DHCP requests. • OFF—specifies that the token-ring network interface card should not send DHCP requests. **Notes:** 1. This menu item appears only when TCP/IP is ON. 2. The number of DHCP requests is determined by a setting on the token-ring network interface card; the default is three.
NETWARE	ON* OFF	Turns Netware communications on or off. • ON—enables Netware communications. • OFF—disables Netware communications.

Token Ring Menu Item	Value	Description
NW FRAME	AUTO* 802.2 SNAP	Selects the Netware frame type. • AUTO—the printer uses the frame type of the first frame it receives. • 802.2—the printer uses the IEEE 802.2 frame type. • SNAP—the printer uses the SNAP frame type. **Note:** This menu item appears only when NETWARE is ON.
NETBIOS	ON* OFF	Turns NetBIOS communications on or off. • ON—enables NetBIOS communications. • OFF—disables NetBIOS communications.
APPLETALK	ON* OFF	Turns AppleTalk communications on or off. • ON—enables AppleTalk communications. • OFF—disables AppleTalk communications.
MAC ADDRESS	nn.nn.nn.nn.nn.nn	Specifies the MAC (medium access control) number of the printer. **Note:** Normally, the MAC ADDRESS should be set to the unique MAC ADDRESS on the network interface card. You can, however, also use the MAC ADDRESS field to define locally administered addresses (LAA). Resetting the printer to factory defaults sets the LAA back to the MAC address. Each LAA must be unique, so make sure to consult your network or LAN administrator before changing this value. See “Setting the Locally Administered MAC Address (LAA)” on page 186 for more information.

Ethernet Menu

Important!

For information about configuring the Ethernet attachment, please see *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide*, which comes with the Ethernet Network Interface Card. “Chapter 9. Configuring Printer Network Addresses” on page 185 describes how to define the IP address, default gateway address, and subnet mask from the operator panel.

Use the Ethernet Menu to configure the Ethernet attachment. The following table describes the settings you can change from the Ethernet Menu. An

asterisk (*) next to a value in the table indicates the factory default. The Ethernet Menu appears only if you have the Ethernet attachment installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Ethernet Menu Item	Value	Description
PERSONALTY	AUTO* PCL PS IPDS	Specifies how the printer treats jobs it receives over the Ethernet attachment: • AUTO—the printer examines the data stream and handles it accordingly. • PCL—the printer treats all data streams as PCL5e. • PS—the printer treats all data streams as PostScript. • IPDS—the printer treats all data streams as IPDS. This option appears only if the IPDS SIMM is installed.
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other attachments for jobs, if other attachments are installed. Valid values are 5 to 300. The default is 15 seconds.
TCP/IP	ON* OFF	Turns TCP/IP communications on or off. • ON—enables TCP/IP communications. • OFF—disables TCP/IP communications. **Note:** If TCP/IP is OFF, the following menu items do not appear: IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, BOOTP, and DHCP.
IP ADDRESS	nnn.nnn.nnn.nnn	Specifies the printer's IP address. Consult your network or LAN administrator before changing this value. See "Chapter 9. Configuring Printer Network Addresses" on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.
SUBNET MASK	nnn.nnn.nnn.nnn	Specifies the printer's subnet mask. Consult your network or LAN administrator before changing this value. See "Chapter 9. Configuring Printer Network Addresses" on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.

Ethernet Menu Item	Value	Description
GATEWAY ADDRESS	nnn.nnn.nnn.nnn	Specifies the IP address of the default gateway. Consult your network or LAN administrator before changing this value. See “Chapter 9. Configuring Printer Network Addresses” on page 185 for more information. **Note:** This menu item appears only when TCP/IP is ON.
BOOTP	IFNO ADDR* ON OFF	Specifies whether the Ethernet network interface card sends bootp requests to the server to have an IP address assigned to the printer. • IFNO ADDR—specifies that the Ethernet network interface card sends bootp requests **only** if the address is not already set at the printer. • ON—specifies that the Ethernet network interface card sends bootp requests. • OFF—specifies that the Ethernet network interface card should not send bootp requests. **Notes:** 1. This menu item appears only when TCP/IP is ON. 2. The number of bootp requests is determined by a setting on the Ethernet network interface card; the default is three.
DHCP	IFNO ADDR* ON OFF	Specifies whether the Ethernet network interface card sends DHCP requests to the server to have an IP address assigned to the printer. • IFNO ADDR—specifies that the Ethernet network interface card sends DHCP requests **only** if the address is not already set at the printer. • ON—specifies that the Ethernet network interface card sends DHCP requests. • OFF—specifies that the Ethernet network interface card should not send DHCP requests. **Notes:** 1. This menu item appears only when TCP/IP is ON. 2. The number of DHCP requests is determined by a setting on the Ethernet network interface card; the default is three.
NETWARE	ON* OFF	Turns Netware communications on or off. • ON—enables Netware communications. • OFF—disables Netware communications.

Ethernet Menu Item	Value	Description
NW FRAME	AUTO* ETH II 802.2 802.3 SNAP	Selects the Netware frame type. • AUTO—the printer uses the frame type of the first frame it receives. • ETHER II—the printer uses the Ethernet Standard Version 2 frame type. • 802.2—the printer uses the IEEE 802.2 protocol. • 802.3—the printer uses the IEEE 802.3 protocol. • SNAP—the printer uses the SNAP protocol. **Note:** This menu item appears only when NETWARE is ON.
NETBIOS	ON* OFF	Turns NetBIOS communications on or off. • ON—enables NetBIOS communications. • OFF—disables NetBIOS communications.
APPLETALK	ON* OFF	Turns AppleTalk communications on or off. • ON—enables AppleTalk communications. • OFF—disables AppleTalk communications.

Coax SCS Menu

Use the Coax SCS Menu to define how the printer handles SCS data over the coax attachment. The following table describes the settings you can change from the Coax SCS Menu. An asterisk (*) next to a value in the table indicates the factory default. The Coax SCS Menu appears only if you have the coax network interface card installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values set in print jobs override Coax SCS Menu values set at the printer.
3. For more information about configuring the coax attachment, see *IBM Network Printers: Twinax/Coax Configuration Guide.*
4. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Coax SCS Menu Item	Value	Description
TRAY1 TRAY2 TRAY3 AUX	COR* C-PORT PORT LAND	Specifies the default orientation for jobs printed from each tray. TRAY1 is the standard 500-sheet input tray. TRAY2 is the lower 500-sheet input tray if one optional 500-sheet tray is installed, it is the middle 500-sheet tray if two optional 500-sheet trays are installed. TRAY3 is the lowest 500-sheet tray when two optional 500-sheet trays are installed. Each input can be assigned one of the following default orientations: • COR—computer output reduction: Printing in landscape with the logical page reduced to fit more data on the physical page. The printer reduces vertical spacing and uses a smaller font with less space between letters. • C-PORT—compressed portrait: printing in portrait, but with horizontal and vertical compression. Horizontal compression makes it possible to print 80 characters per line in portrait when 10 cpi is used and 133 characters per line when 16.7 cpi is used. The horizontal compression factor differs depending on paper size used. Because of this, no horizontal compression can be seen when Letter paper is used because Letter paper in portrait already allows 80 characters in 10 cpi. Vertical compression makes it possible to print 66 lines per page in 6 LPI or 88 lines per page in 8 LPI. The vertical compression factor also varies depending on the paper size used. • PORT—portrait: the page has normal, upright business letter orientation. For envelopes from the auxiliary tray, PORT specifies normal envelope orientation. • LAND—landscape: the page is wider than long.

Coax SCS Menu Item	Value	Description
APO	ENABLE* DISABLE	Enables or disables automatic print orientation. • ENABLE—if the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed. • DISABLE—the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT). **Notes:** 1. Values specified in the data stream override values set at the printer. 2. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility. 3. The requested dimensions are determined by the values of CPI, LINE SPACING, MPP, and MPL for the job. These values can be set in the data stream or on the Coax SCS Menu.
LPI	6* 8 0	Specifies a default lines per inch value for jobs received over the coax attachment. Valid values are 0, 6, and 8. The default is 6 lines per inch. 0 specifies either the value specified in the job, or the PCL default value for the printer.
LINE SPACING	1* 2	Specifies single or double spacing: • 1—single spacing • 2—double spacing
CPI	nn.n	Specifies the default characters per inch, or pitch. nn can be 0, 10, 12, 15, 16.7, 20, or 27. The default is 10 characters per inch. 0 specifies a proportional font (FGID 1452). Note that proportional fonts use proportional spacing, which may cause unexpected results (for example, tabular data may appear misaligned).
CASE	DUAL* MONO	Specifies the case of the printed text: • DUAL—characters print in the case received • MONO—all characters print in uppercase
MPL	nnn	Specifies the maximum page length (MPL) in lines per page. Valid values are 0 to 255. 66 is the default.
MPP	nnn	Specifies the maximum print position (MPP). Valid values are 0 to 255. 85 is the default.

Coax SCS Menu Item	Value	Description
CODE PAGE	nnn	Specifies the code page to use. Code page 037 is the default. 037 US, Canada, Netherlands, Portugal 260 Canadian/French 273 Austrian/German 275 Brazil 277 Danish/Norwegian 278 Finnish/Swedish 280 Italian 281 Japanese 284 Spanish 285 UK English 286 Austrian/German (alternate) 287 Danish/Norwegian (alternate) 288 Finnish/Swedish (alternate) 289 Spanish 297 French 420 Arabic 424 Hebrew 500 Belgium, Switzerland / International 871 Icelandic 875 Greek 000 download the code page from the 3174 control unit
TBM	nn.n	The top binding margin (TBM) determines the position of line 1 relative to the top edge of the printable area when printing in portrait or landscape orientation. TBM is measured in tenths of an inch, with a default of 0. It applies to all paper sources.
LBM	nn.n	The left binding margin (LBM) determines the position of column 1 relative to the left edge of the printable area when printing in portrait or landscape orientation. LBM is measured in tenths of an inch, with a default of 0. It applies to all paper sources.
PA1	none	Selecting this value and pressing the **Enter** key sends a PA1 signal to the host. **Note:** This applies to SCS only; not DSC/DSE or IPDS.
PA2	none	Selecting this value and pressing the **Enter** key sends a PA2 signal to the host. **Note:** This applies to SCS only; not DSC/DSE or IPDS.

Twinax SCS Menu

Use the Twinax SCS Menu to define how the printer handles SCS data over the twinax attachment. The following table describes the settings you can change from the Twinax SCS Menu. An asterisk (*) next to a value in the table indicates the factory default. The Twinax SCS Menu appears only if you have the twinax network interface card installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. Values set in print jobs (either by the print application or the printer driver) override Twinax SCS Menu values set at the printer.
3. For more information about configuring the twinax attachment, see *IBM Network Printers: Twinax/Coax Configuration Guide.*
4. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Twinax SCS Menu Item	Value	Description
TRAY1 TRAY2 TRAY3 AUX	COR* PORT LAND C-PORT	Specifies the default orientation for jobs printed from each tray listed on the menu. TRAY1 is the standard 500-sheet input tray. TRAY2 is the lower 500-sheet input tray if one optional 500-sheet tray is installed, it is the middle 500-sheet tray if two optional 500-sheet trays are installed. TRAY3 is the lowest 500-sheet tray when two optional 500-sheet trays are installed. AUX is the flip-down tray in the front of the printer. Each input can be assigned one of the following default orientations: • COR—computer output reduction: Printing in landscape with the logical page reduced to fit more data on the physical page. The printer reduces vertical spacing and uses a smaller font with less space between letters. • PORT—portrait: the page has normal, upright business letter orientation. • LAND—landscape: the page is wider than long. • C-PORT—compressed portrait: printing in portrait, but with compression. Horizontal compression is supported with 10 cpi only. The compression factor is fixed; it makes it possible to print 80 characters per line on A4 paper and 85 characters per line on Letter paper.

Twinax SCS Menu Item	Value	Description
LPI	6* 8 0 3 4	Specifies a default lines per inch value. 0 specifies either the value specified in the job, or the PCL default value for the printer.
CPI	nn.n	Specifies the default characters per inch, or pitch. nn can be 0, 5, 10, 12, 15, 17.1, 20, or 27. The default is 10.
CODE PAGE	nnn	Specifies the default code page to use. The default value is code page 037. 037 U.S.A. and Canada 273 Austrian/German 274 Belgium 275 Brazil 277 Danish/Norwegian 278 Finnish/Swedish 280 Italy 281 Japanese (Latin) 282 Portugal 284 Spanish (Latin America) 285 United Kingdom 297 France 420 Arabic 424 Hebrew 500 Multinational (International #5) 871 Iceland 875 Greek

Twinax SCS Menu Item	Value	Description
APO	ENABLE* DISABLE	Enables or disables automatic print orientation. • ENABLE—if the requested dimensions of the job fit on the paper, the page is printed either in portrait or landscape, whichever better fits the dimensions. If the requested dimensions do not fit on the paper, the default orientation for the tray (COR, PORT, LAND, or C-PORT) determines how the sheet is printed. • DISABLE—the page prints using the default orientation for the tray (COR, PORT, LAND, or C-PORT). **Notes:** 1. Values specified in the data stream override values set at the printer. 2. The factory defaults (orientation set to COR and APO=ENABLE) give you the most flexibility. 3. The requested dimensions are determined by the values of CPI, LPI, MPP, and MPL for the job. These values can be set in the data stream. CPI and LPI can be set on the Twinax SCS menu. The twinax default values for MPP and MPL cannot be set from a menu; they are 132 for MPP and 62 for MPL.

Coax Setup Menu

Use the Coax Setup Menu to configure the coax attachment. The following table describes the settings you can change from the Coax Setup Menu. An asterisk (*) next to a value in the table indicates the factory default. The Coax Setup Menu appears only if you have the coax network interface card installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. For more information about configuring the coax attachment, see *IBM Network Printers: Twinax/Coax Configuration Guide.*
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Coax Setup Menu Item	Value	Description
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other installed attachments, and will switch to attachments with jobs waiting. nnn can be from 0 to 255. The default is 90 seconds. 0 dedicates the printer to the coax attachment (the printer will not accept data from other attachments).
IRQ TMEOUT	nn	Specifies when an IRQ (intervention required) timeout is sent. This tells the printer how long to wait for an intervention required condition to be corrected before notifying the host of the error. nn can be from 0 to 3600 seconds. The default is 60 seconds. 0 specifies to never send an IRQ timeout.
HLD TMEOUT	nn	Specifies the hold timeout value. This value tells the printer how long to wait if the printer is offline for an intervention required condition to be corrected. After this time elapses, the host is notified of the error. nn can be from 0 to 1200 seconds. The default is 10 seconds. 0 specifies to never send a hold time out.
BUSY TMEOUT	nnn	Specifies the busy timeout value. This specifies the amount of time to wait (when the printer is connected to multiple ports) for control to be returned to the coax attachment, before notifying the host. nnn can be from 0 to 999 minutes. The default is 20 minutes. 0 specifies to never send a busy timeout.
EDGE-EDGE	OFF* ON	Turns edge-to-edge printing on or off. • OFF—the printer maintains a border of 4 mm on all four paper sides. • ON—The printer allows printing up to the physical page size. **Notes:** 1. To prevent toner from contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF for coax printing; use ON only when necessary. 2. The Coax Setup Menu item EDGE-EDGE applies to SCS data only. To specify edge-to-edge printing for IPDS data, use the EDGE-EDGE item on the IPDS Menu.
EAB	ENABLE* DISABLE	Enables or disables the extended attribute buffer.

Coax Setup Menu Item	Value	Description
BUFFERSIZE	960 1920* 2560 3440 3564	Specifies the buffer size in bytes.
EARLY COMPL	ON* OFF	Turns early print completion on or off for non-IPDS data sent over the coax attachment. To turn early print completion on or off for IPDS data over the twinax network attachment, use the EARLY COMPL item on the IPDS Menu. • ON—sends an "order complete" as soon as data is received. • OFF—waits until the print job is physically complete to send "order complete."

Twinax Setup Menu

Use the Twinax Setup Menu to configure the twinax attachment. The following table describes the settings you can change from the Twinax Setup Menu. An asterisk (*) next to a value in the table indicates the factory default. The Twinax Setup Menu appears only if you have the twinax network interface card installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.

   Important! If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect.
2. For more information about configuring the twinax attachment, see *IBM Network Printers: Twinax/Coax Configuration Guide.*
3. If you are unfamiliar with using the operator panel to work with menus, please read "Using the Operator Panel Keys" on page 23 and "Navigating Menus" on page 24 before continuing.

Twinax Setup Menu Item	Value	Description
SCS ADDR	OFF* n	The twinax hardware address of the SCS port. n can be from 0 to 6. **Notes:** 1. SCS ADDR and IPDS ADDR cannot be set to the same value. 2. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect. 3. When the IPDS SIMM is installed, the InfoPrint 20 can act as two separate printers on the same twinax port. (The printer cannot be attached to two different twinax systems using the same twinax card.) One “printer” prints SCS data to one address (SCS ADDR), and the other prints IPDS to another address (IPDS ADDR).
IPDS ADDR	OFF* n	The twinax hardware address of the IPDS port. n can be from 0 to 6. **Notes:** 1. SCS ADDR and IPDS ADDR cannot be set to the same value. 2. If you change SCS ADDR or IPDS ADDR, you must power off the printer, wait ten seconds, and then power on the printer for the new value to take effect. 3. When the IPDS SIMM is installed, the InfoPrint 20 can act as two separate printers on the same twinax port. (The printer cannot be attached to two different twinax systems using the same twinax card.) One “printer” prints SCS data to one address (SCS ADDR), and the other prints IPDS to another address (IPDS ADDR).
EDGE-EDGE	OFF* ON	Turns edge-to-edge printing on or off. • OFF—the printer maintains a no-print border of 4 mm on all four paper sides. • ON—The printer allows printing up to the physical page size. **Notes:** 1. To avoid toner contaminating the printer, IBM recommends leaving EDGE-EDGE set to OFF for twinax printing; use ON only when necessary. 2. The Twinax Setup Menu item EDGE-EDGE applies to SCS data only. To specify edge-to-edge printing for IPDS data, use the EDGE-EDGE item on the IPDS Menu.

Twinax Setup Menu Item	Value	Description
BUFFERSIZE	1024* 256	Specifies the IPDS buffer size in bytes. The SCS buffer size is always 256.
PORT TMEOUT	nnn	Specifies the number of seconds the printer waits for data before it determines there is no more data to receive for the job. The printer then checks other installed attachments, and will switch to attachments with jobs waiting. Valid values are 0 to 255. The default is 90 seconds. **Note:** To help avoid port conflicts, do not set PORT TMEOUT to a value less than 15.

Coax DSC/DSE Menu

Use the Coax DSC/DSE Menu to define how the printer handles DSC/DSE data over the coax attachment. The following table describes the settings you can change from the Coax DSC/DSE Menu. The options you specify apply only to DSC/DSE mode. An asterisk (*) next to a value in the table indicates the factory default. The Coax DSC/DSE Menu appears only if you have the coax network interface card installed.

Notes:

1. To select a new value, press the **Enter** key when the value is displayed in the message display area. An asterisk (*) appears next to the value in the message display area, indicating that it is now active.
2. For more information about configuring the coax attachment, see *IBM Network Printers: Twinax/Coax Configuration Guide.*
3. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Coax DSC/DSE Menu Item	Value	Description
PRINT IMAGE	ON* OFF	Selects printing options in non-SCS mode. • ON – True Screen image in Local Copy – True Screen image in Non-SCS print – Unformatted print in Local Copy – Unformatted print in Non-SCS print • OFF – Null line suppression in Local Copy – Null line suppression in Non-SCS print – Formatted print in Local Copy – Formatted print in Non-SCS print
CR AT MPP+1	ON* OFF	Sets a carriage return relative to the maximum print position (MPP). • ON—a new line occurs when the carriage return occurs at MPP+1. The next print position will be at the first print position of the new line (current line + 1, column 1). • OFF—no new line occurs when the carriage return occurs at MPP+1. The next print position will be at the first print position of the current line (current line, column 1).
NL AT MPP+1	ON* OFF	Forces a new line at MPP+1. • ON—an additional new line occurs at MPP+1, followed by the carriage return. The next print position will be at the first print position of the new line (current line + 2, column 1). • OFF—no additional new line when the new line occurs at MPP+1. The next print position will be at the first print position of the next line (current line + 1, column 1).
FF DATA	ON* OFF	Forces the printer to eject the current page. • ON—when a Form Feed command is encountered, the current page is ejected and the form is indexed to the first line of the next page. The next print position will be at the first print position of the first line of the next page (next form, line 1, column 1). • OFF—when a Form Feed command is encountered, the current page is ejected and the form is indexed to the first line of the next page and spaced one position. The next print position will be at the first print position plus 1 of the first line of the next page (next form, line 1, column 2).

Coax DSC/DSE Menu Item	Value	Description
FF LAST	ON* OFF	Determines where to position the next character when the Form Feed command occurs at the end of the print buffer. • ON—an automatic new line occurs after the print order is completed (next form, line 2, column 1). • OFF—suppress automatic new line after the print order is completed (next form, line 1, column 1).
FF VALID	OFF* ON	Determines when a form feed command is valid. • ON—a Form Feed command occurs whenever it is encountered. • OFF—a Form Feed command occurs only if it appears at the first print position in a line, or at MPP+1. Treats a form feed at other locations as blanks.
AUTO FUNCT	OFF* ON	Selects whether the next print position will be on a new line or a new page. • ON—a form feed will be executed automatically at the end of the print order (when printing of a buffer is completed) unless a form feed (FF) is the last character in the print order. • OFF—a new line will be executed automatically at the end the print order (when printing of a buffer is completed) unless a form feed (FF), new line (NL), or carriage return (CR) was the last character in the print order.

Machine Information Menu

Use the Machine Info Menu to display information about printer supply usage. The following table describes the functions you can perform from the Machine Info Menu.

Notes:

1. To perform the action associated with the menu item you select, press the **Enter** key.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Machine Info Menu Item	Description
PAGE COUNT	Displays the number of pages the printer has printed.

Machine Info Menu Item	Description
ERROR LOG	Displays the last ten error messages logged by the printer, and the printer page count when each message occurred. Use the **Value** key to scroll through the list. Note that not all error messages get logged, including some severe errors that halt printer operations.
TONER CTR	Displays the toner cartridge counter. **Note:** IBM recommends resetting this counter whenever you change the toner cartridge. To reset the counter to 0: 1. Simultaneously press the **Shift** and **Value** keys. 2. Press the **Enter** key. The new value will not be displayed until the next time you power off and then power on the printer.
FUSER CTR	Displays the fuser counter. **Note:** IBM recommends resetting this counter whenever you change the usage kit. To reset the counter to 0: 1. Simultaneously press the **Shift** and **Value** keys. 2. Press the **Enter** key. The new value will not be displayed until the next time you power off and then power on the printer.

Language Menu

Use the Language Menu to select the language that the printer uses to display messages and menus on the operator panel. English is the factory default.

Notes:

1. To select a language, press the **Enter** key when the language value is displayed in the message display area. An asterisk (*) appears next to the new value, indicating that it is now active.
2. If you are unfamiliar with using the operator panel to work with menus, please read “Using the Operator Panel Keys” on page 23 and “Navigating Menus” on page 24 before continuing.

Item	Description
ENGLISH* DEUTSCH FRANCAIS ESPANOL ITALIANO NEDERLANDS BRAZ PORT DANSK SUOMI SVENSKA NORSK (KATAKANA)	Selects the language in which the printer displays operator panel messages and menus.

Chapter 7. Maintaining the Printer

This chapter describes how to:

- Replace the toner cartridge
- Replace the usage kit (fuser unit and transfer roller)
- Clean the printer

Note: The customer is responsible for routine care and maintenance of the printer.

Replacing Supplies

The customer's is responsible for ordering supplies (toner cartridges, paper, usage kits) for the InfoPrint 20. To ensure best print quality and performance, use IBM supplies.

You can order supplies through your IBM authorized printer or printer supplies reseller. If you have no reseller, you can call 1-888-IBM-PRINT (1-888-426-7746) in the U.S. or Canada to ask for an authorized dealer or to order from IBM Printer Supplies.

In other countries, contact your point of purchase for information about where to order supplies.

In Europe, you can call the IBM Supplies Fulfillment Operation at 31-43-350 2756, or at the following numbers:

- Belgium: 0800 71950
- Denmark: 80015534
- Finland: 08001-13110
- France: 0800 905871
- Germany: 0130 818005
- Italy: 1-678 78349
- Norway: 800-11389
- Spain: 900-983131
- Sweden: 020-794270
- United Kingdom: 0800-968679

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Changing the Toner Cartridge

Important

The part number for a replacement toner cartridge is 90H0748.

A toner cartridge can print approximately 14,000 pages of Letter-size paper, containing text or graphics that cover 5% of the page. Depending on the type of printing you do, you can obtain up to double the page yield if you use the ECONO setting for the QUALITY item on the Config Menu or if you select toner saver print quality mode from your printer driver. (Note that the driver setting will override the menu setting.) For example, using ECONO and a density setting of 1, you may be able to print up to 28,000 images at 5% coverage.

Note: The actual page yield is affected by the environment, the type of print media, the percentage of text and graphics, the complexity of the graphics, and other factors, so actual results can vary.

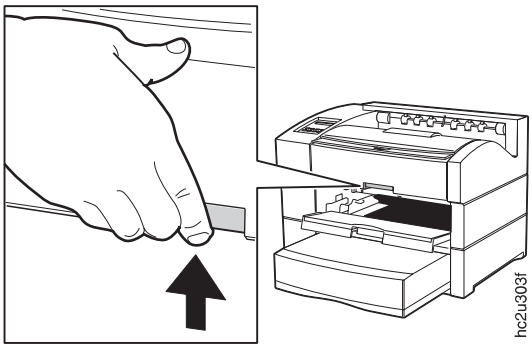
When the toner cartridge is low or empty, the 02 TONER LOW message appears in the display. Use the TONER LOW item in the Config Menu to specify whether to continue or stop printing when the toner cartridge is low on toner. The default is to continue.

To display the number of pages printed using the current toner cartridge, select TONER CTR on the Machine Info Menu (see “Machine Information Menu” on page 128). Note that the counter is accurate only if it was reset when the cartridge was installed.

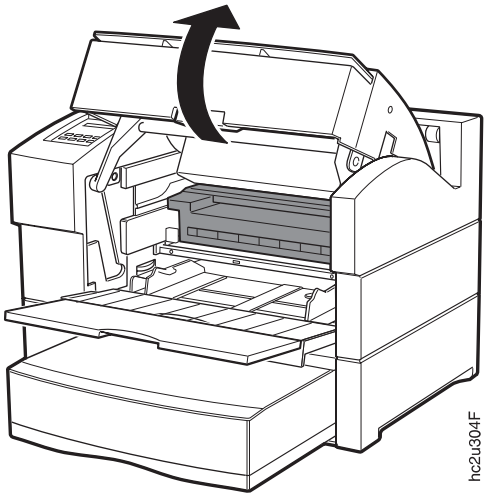
Use the following procedure to replace the toner cartridge.

1. Make sure READY is displayed on the operator panel.
2. Power off the printer.
3. Remove paper from the paper exit area.

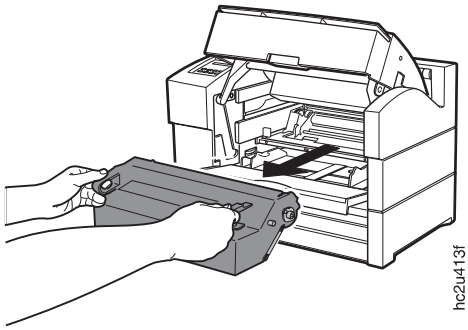
4. Press the release button on the top cover.



5. Open the top cover.



6. Remove the used toner cartridge.

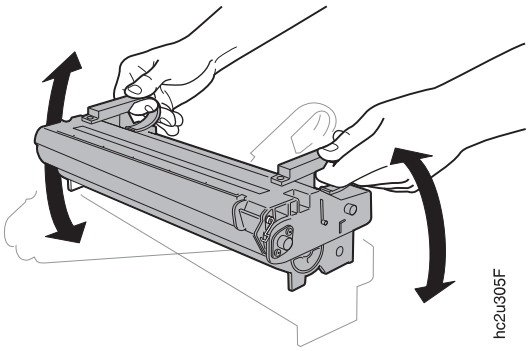


Note: Keep the toner cartridge level to avoid spilling toner. To use the IBM Printer Supplies Return Program, you can use the box containing the new toner cartridge to return the old toner cartridge to IBM for recycling. Follow the instructions on the brochure included with the new toner cartridge.

7. Remove the new toner cartridge from its foil wrapper.

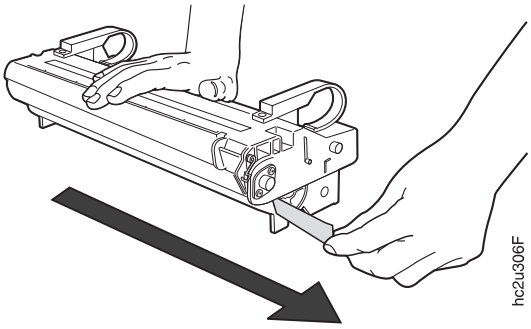
   Attention: Do not expose the new cartridge to direct sunlight. Do not leave the cartridge exposed outside the printer or the foil wrapper for more than five minutes.

8. Grip the cartridge at each end and gently rock it from side to side a few times to evenly distribute the toner.



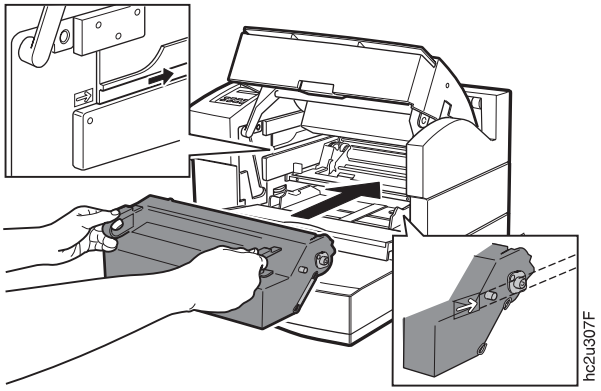
9. Place the cartridge on a flat surface and locate the yellow tape at the end of the cartridge. Pull the end of the tape straight out to remove the toner seal.

   Note: After you remove the seal, do not shake the cartridge.

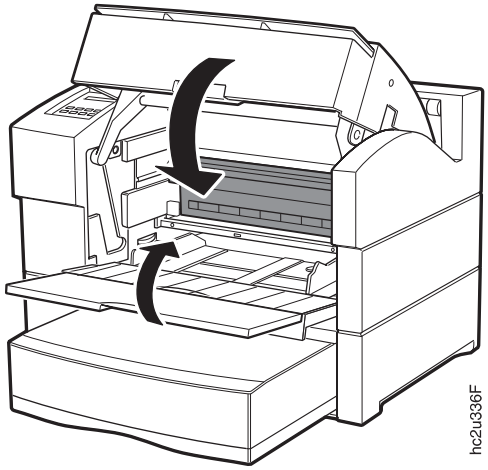


10. Grip the toner cartridge as shown. Slide the cartridge into the printer guide channels. To make sure the toner cartridge is secure, gently press

both ends of the cartridge until the cartridge stops.



11. Close the auxiliary tray and then the top cover.



12. Power on the printer and then reset the toner counter.
    a. Press the **Online** key until you see OFFLINE in the display.
    b. Press the **Menu** key until you see MACHINE INFO MENU.
    c. Press the **Item** key until you see TONER CTR.
    d. Simultaneously press the **Shift** and **Value** keys.
    e. Press the **Enter** key.

    The new value will not be displayed until the next time you power on the printer.

Changing the Usage Kit

The usage kit consists of a fuser and a transfer roller. The life of the usage kit depends on the type of paper you use and the type of output you print.

Important

The part numbers for replacement usage kits are:

- (100 volt): 90H3465 (for use in Japan)
- (120 volt): 90H0750
- (230 volt): 90H0751

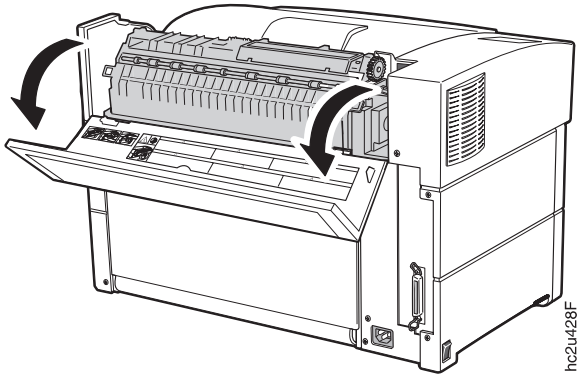
To replace the usage kit, do the following:

1. Power off the printer.
2. Unplug the printer power cord from the wall outlet.
3. Remove the power cord from the back of the printer.
4. Remove the duplex unit if it is installed. See “Removing the Duplex Unit” on page 161.
5. To remove the existing fuser, do the following:
   a. Open the fuser cover.

CAUTION:

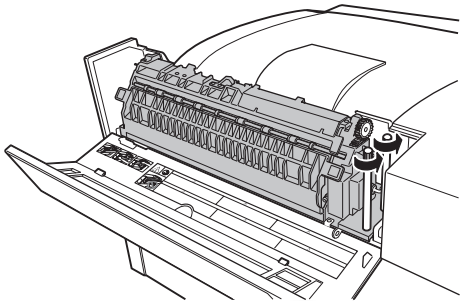
<2-25> High temperature; switch off the printer and allow at least 20 minutes for parts in this area to cool before handling.

hcsf0225

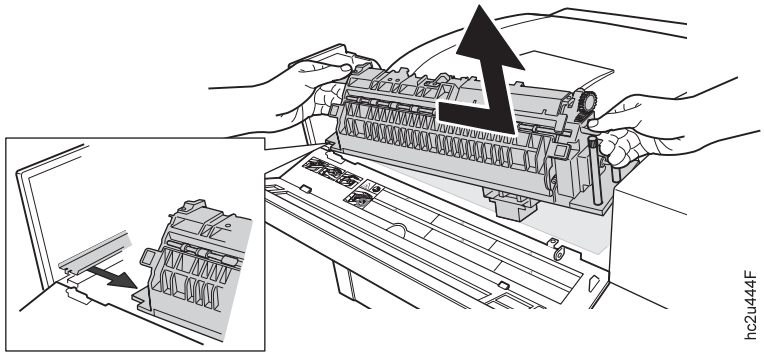


hc2u428F

b. Loosen the two thumbscrews as shown. The screws do not detach from the fuser.

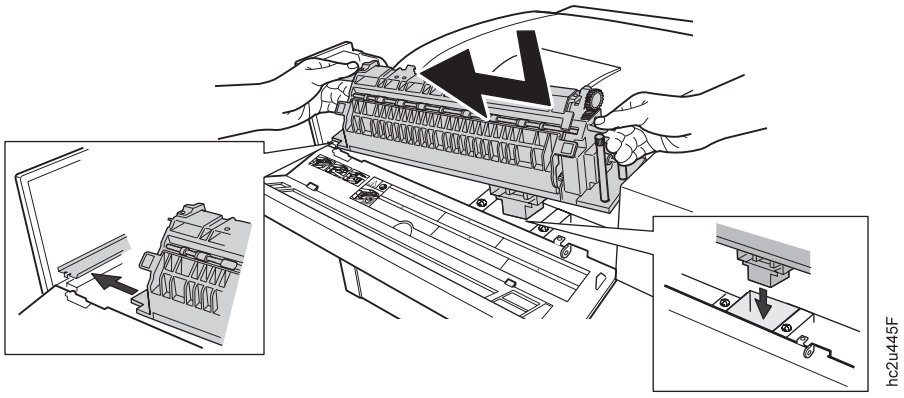


c. Holding the fuser by the handles, lift the right side of the fuser, slide the fuser to the right to free the left end of the fuser from the clamp, and lift the fuser up to remove it.

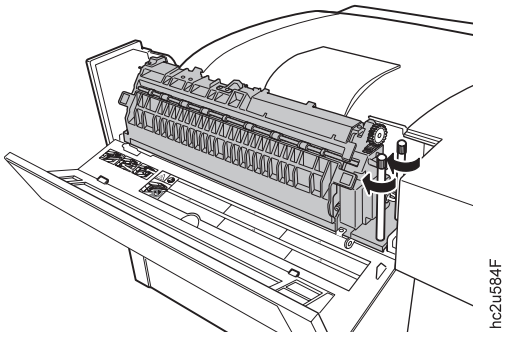


6. To install the new fuser, do the following:
   a. Slide the left end of new fuser into the clamp and lower the fuser into place, taking care to insert the connector on the bottom of the fuser

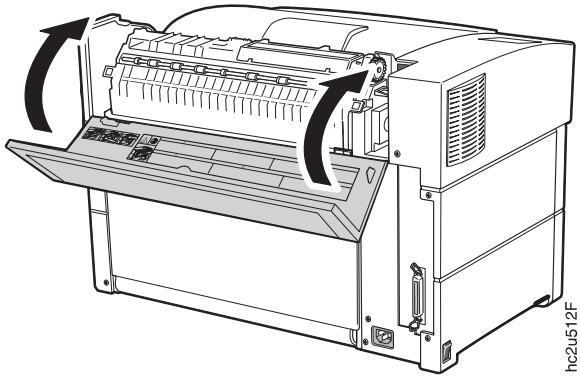
into the hole in the printer frame.



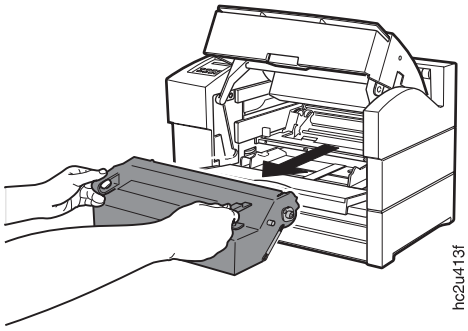
b. Hand tighten the thumbscrews. Use a screwdriver or a coin to further tighten the screws to keep the fuser from loosening during use.



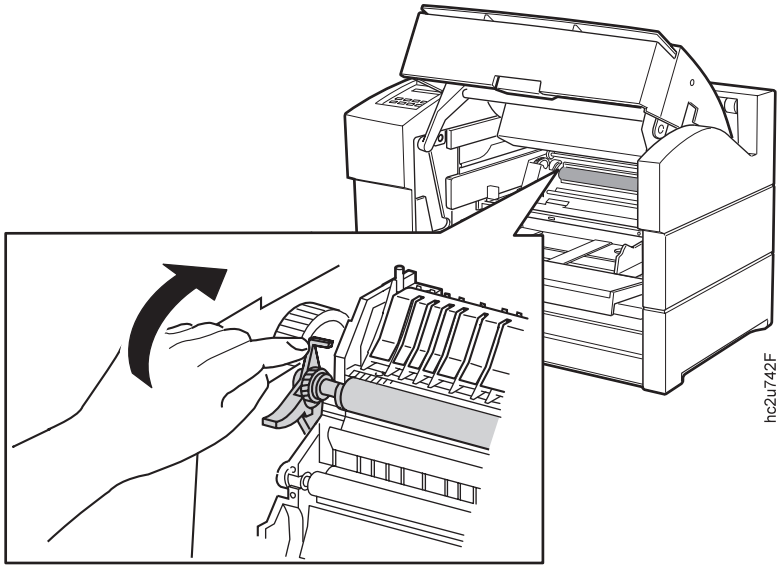
c. Close the fuser cover.



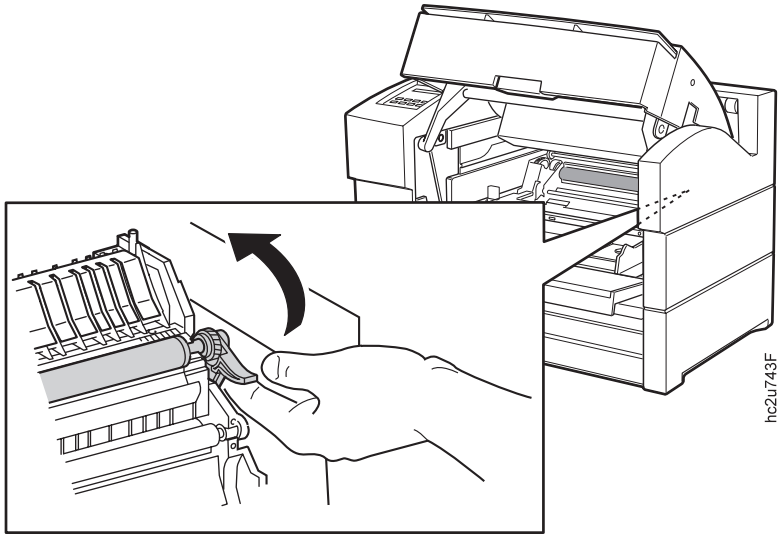
7. To remove the existing transfer roller, do the following:
   a. Open the top cover and remove the toner cartridge. Store the toner cartridge in a dark place (such as its foil packaging) to protect it. Keep the toner cartridge level to avoid spilling toner.



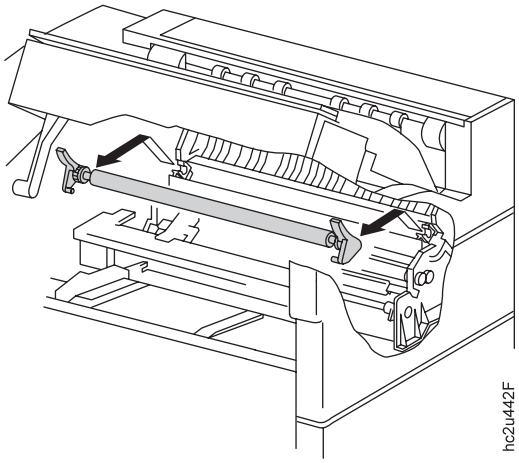
b. Push the small tab forward to free the left end of the transfer roller.



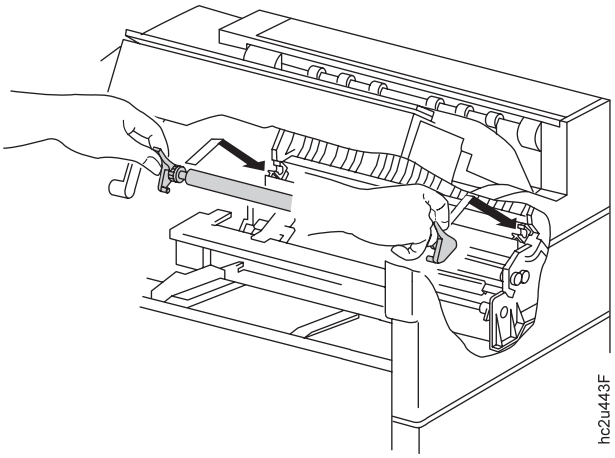
c. Lift the large tab to free the right end of the transfer roller.



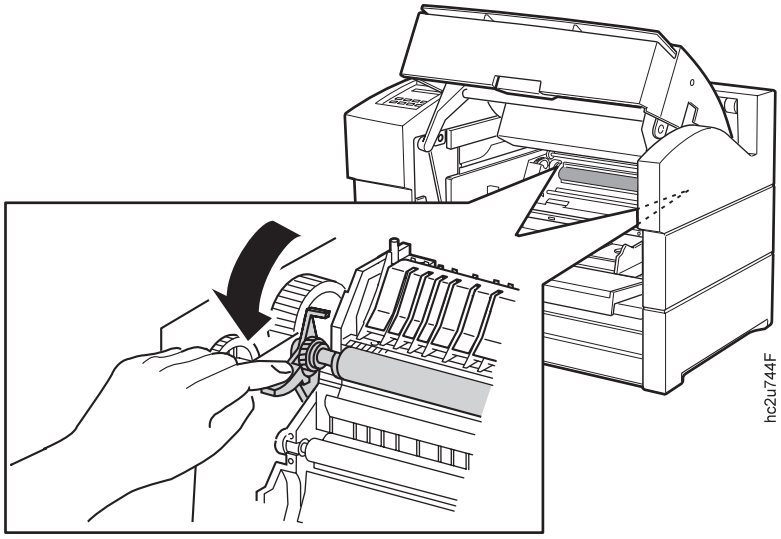
d. Grasp the tabs on the ends of the transfer roller and pull the transfer roller towards you to remove it from the printer.



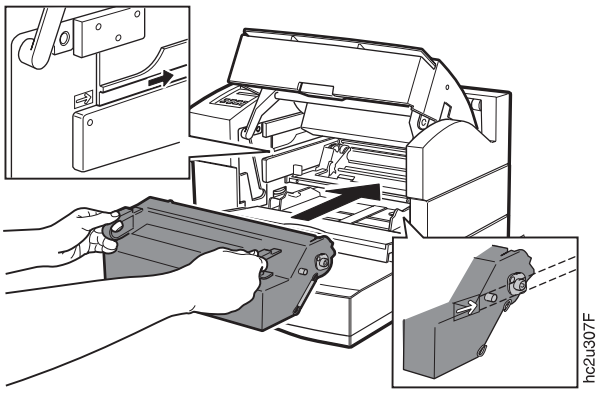
8. To install the new transfer roller:
   a. Grasp the tabs at the ends of the new transfer roller and insert it into the printer.



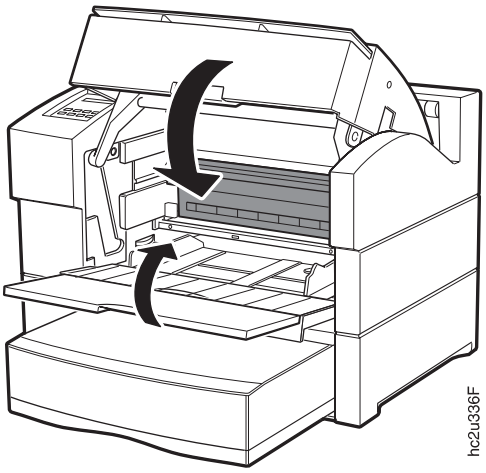
b. Press the tabs down to secure the new transfer roller.



9. Reinstall the toner cartridge. Grip the toner cartridge as shown. Slide the cartridge into the printer guide channels. To make sure the toner cartridge is secure, gently press both ends of the cartridge until the cartridge stops.

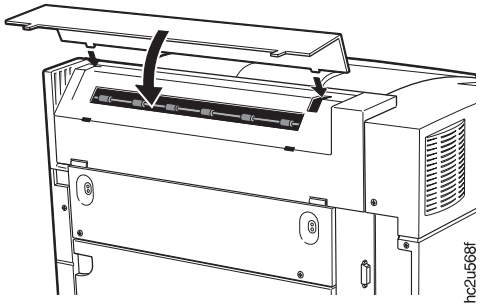


10. Close the auxiliary tray and then the top cover.



11. Reinstall the duplex unit if it was installed before. See “Installing The Duplex Unit” on page 157.

    Attention: If you removed the duplex unit and you are not reinstalling it, reinstall the filler panel. If the duplex unit is removed, do not use the printer without the filler panel.



12. Plug the power cord into the printer and the wall outlet.
13. Power on the printer and reset the fuser counter:
    a. Press the **Online** key until you see OFFLINE in the display.
    b. Press the **Menu** key until you see MACHINE INFO MENU.

c. Press the **Item** key until you see FUSER CTR.
d. Simultaneously press the **Shift** and **Value** keys.
e. Press the **Enter** key.

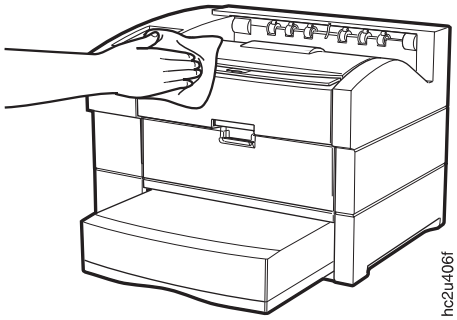
The new value will not be displayed until the next time you power on the printer.

Cleaning the Printer

IBM recommends cleaning your printer approximately once per month.

1. Power off and unplug the printer.
2. Use a soft, damp cloth to carefully wipe the outside of the printer.

   Attention: Do not use abrasive cleaners on the printer covers. Do not use detergent solutions or other liquids on electronic components. Do not use cleaners that contain ammonia.



3. Wipe the printer dry with a soft, dry cloth.

Checking the Power Cord

IBM recommends checking the printer plug approximately once a month.

1. Power off the printer.
2. Unplug the power cord from the printer and the wall socket.
3. Check the plugs of the power cord for heat damage, rust, bent prongs or other damage.
4. Verify that the plug and AC outlet are free of accumulated dust.
5. Check the power cord for cracks, tears, abrasion or other damage.
6. Plug the power cord firmly into the wall socket.
7. Plug the power cord firmly into the AC outlet.

Note: Always make sure you leave enough room around all power plugs for you to easily disconnect the printer power cord.

Chapter 8. Installing Printer Options

This chapter describes how to install and remove the following options:

- SIMMs and hard drive (see page 148)
- The network interface cards (see page 154)
- The duplex unit (see page 157)
- The 500-sheet paper tray (see page 164)
- The envelope tray (see page 172)
- The 2000-Sheet Input Drawer (see page 173)

Important

To verify that an option is installed correctly, print the configuration page. See “Printing the Printer Configuration Page” on page 25. Also, make sure you update your printer driver to indicate the new feature is installed.

Handling Static Sensitive Devices

When you handle options and other computer components, take these precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always handle components carefully. Handle adapters and memory-module kits by the edges. Never touch any exposed circuitry.
- When you are installing a new option, touch the static-protective package containing the option to the mounting bracket on the controller card for at least two seconds. This reduces static electricity from the package and from your body.
- When possible, unpack the option and install it directly in the controller without setting the option down. When this is not possible, place the static-protective package that the option came in on a smooth, level surface and place the option on it.
- Do not place the option on the printer cover or other metal surface.

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SIMMs and Hard Drives

Optional SIMMs include:

- Dynamic random access memory (DRAM) SIMMs: 4MB, 8MB, 16MB, or 32MB
- Flash memory SIMMs: 2MB or 4MB
- Intelligent Printer Data Stream (IPDS)

To install any SIMM or the hard drive, you must remove the controller card (see “Removing the Side Cover”).

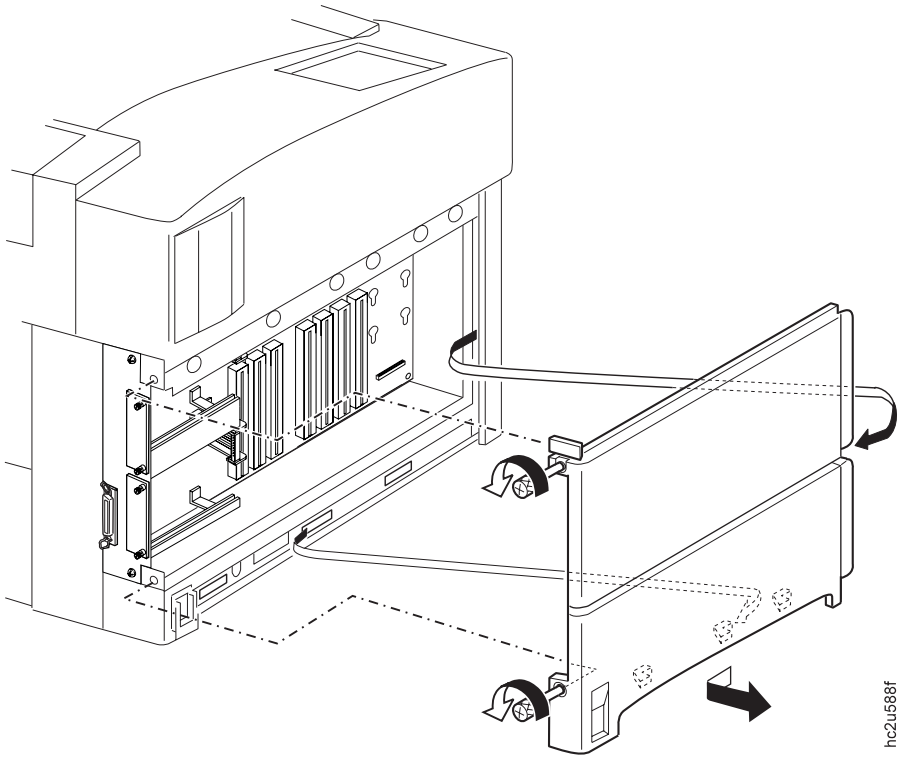
Removing the Side Cover

Use the following procedure to remove the side cover:

Attention: Do not switch the power off if the printer is printing a page. This action jams the printer.

1. Switch the printer power off.
2. Unplug the printer from the wall outlet.
3. Remove the power cord from the back of the printer.
4. Loosen the thumbscrews located on the side cover at the back of the printer. Slide the side cover toward the back of the printer to release the

tabs and hooks, and remove the side cover.



5. To install a SIMM, see “Installing a SIMM”. To install a hard drive, see “Installing a Hard Drive” on page 151.

Installing a SIMM

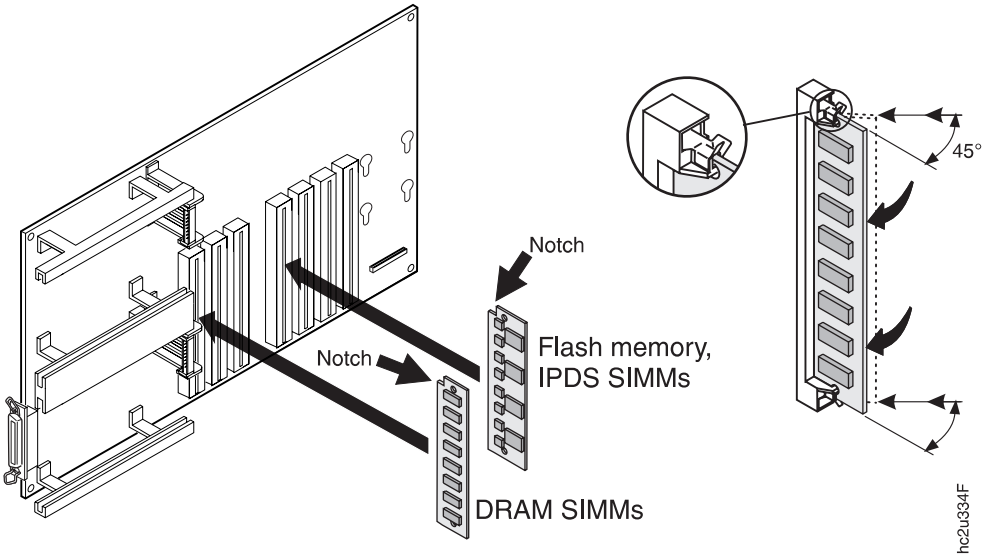
Attention
Follow the instructions for handling static-sensitive devices described on page 147.

Use the following procedure to install a SIMM:

1. Ensure that printer is powered off and unplugged from the wall outlet.
2. The side cover must be removed before installing a SIMM. Follow the procedure “Removing the Side Cover” on page 148.
3. Locate the correct socket group for the type of SIMM you are installing. There are two socket groups: one contains three sockets, the other contains four sockets. The DRAM SIMMs (memory) must be installed in one of the

sockets in the socket group of three. The IPDS SIMM and the flash memory SIMMs must be installed in one of the sockets in the socket group of four.

SIMMs should be loaded from the left to the right but the position of the SIMM within the group of sockets does not matter.



4. Hold the SIMM with the notch facing the socket and the notch at the top. Insert the SIMM at a 45 degree angle and move it into position in the socket. Using your thumbs, press with even pressure on both ends of the SIMM until the SIMM is firmly seated in the socket.

   Make sure the clips on either end of the socket snap into place to hold the SIMM. If necessary, use your thumbs to move the clips upright into the grooves to lock the SIMM in place.
5. Verify that the SIMM is correctly installed in the socket by looking at its position from the sides of the controller card.
6. Reinstall the side cover. Follow the procedure “Reinstalling the Side Cover” on page 152.

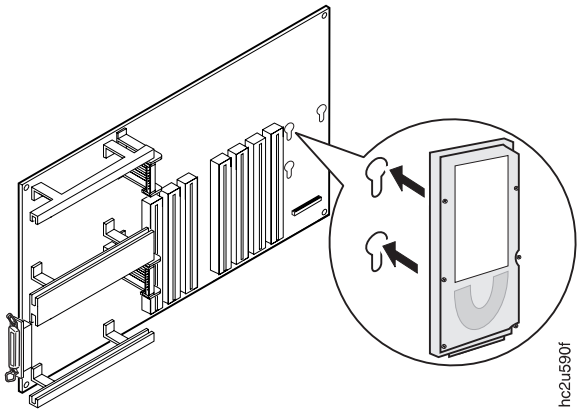
Installing a Hard Drive

Attention

Follow the instructions for handling static-sensitive devices described on page 154.

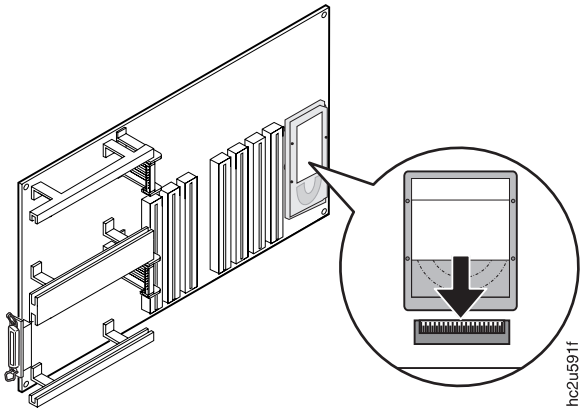
Use the following procedure to install a hard drive:

1. Ensure that printer is powered off and unplugged from the wall outlet.
2. The side cover must be removed before installing the hard drive. Follow the procedure “Removing the Side Cover” on page 148.
3. Unpack the hard drive.
4. Position the hard drive with the four screws facing the four matching holes on the controller card.



5. Push the hard drive firmly into the card and slide it down toward the connector at the bottom of the controller card. The pins on the hard drive

should be firmly seated in the connector slots.



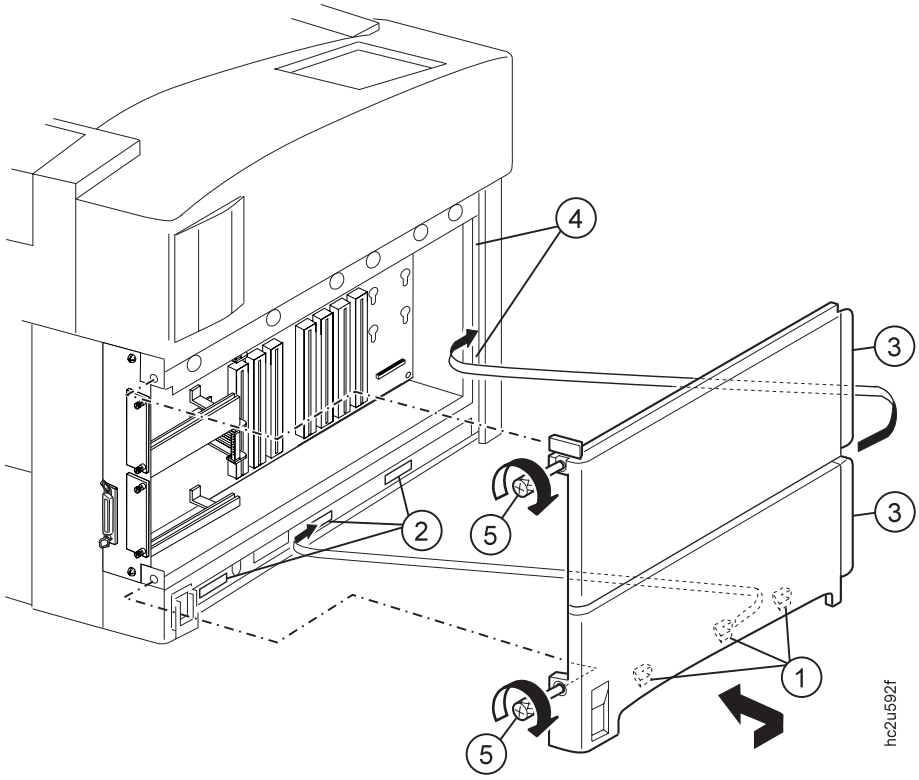
6. Reinstall the side cover. Follow the procedure “Reinstalling the Side Cover”.

Reinstalling the Side Cover

Use the following procedure to reinstall the side cover:

1. Insert the hooks (1) at the bottom of the side cover into the holes (2) at the bottom of the printer frame.
2. Guide the tabs (3) into the slots (4) in the top cover and slide the side cover toward the front of the printer.

3. Tighten the thumbscrews (5) at the top and bottom of the side cover mounting bracket.



4. Connect the power cord to the back of the printer.
5. Connect the other end of the power cord to a grounded AC outlet.
6. Switch the printer power on.
7. After the printer warms up, the READY message displays on the operator panel.
8. To confirm that you have correctly installed a memory SIMM, hard drive, data stream SIMM, or any combination, print a configuration page. The configuration page lists the features if they have been correctly installed. See “Printing the Printer Configuration Page” on page 25.

   Note: If the options do not appear for the SIMM or hard drive, remove the side cover, make sure that the SIMM or hard drive is correctly seated, and reinstall the side cover.

9. Make sure you update your printer driver to indicate the new DRAM SIMM, Flash Memory SIMM, or hard drive is installed.

Network Interface Cards

The InfoPrint 20 attaches to networks and other system configurations through these optional cards:

- IBM Network Card for Ethernet (10BaseT/10Base2)
- IBM Network Card for Token Ring
- IBM Twinax SCS Interface Card
- IBM Coax SCS Interface Card

If you have purchased network interface cards for your printer, install them in the printer following the steps listed in this section. Two cards to connect to two different systems can be installed.

Note: You cannot install two identical cards. For example, the printer cannot accept two IBM Network Cards for Ethernet, but it can accept an IBM Ethernet card and an IBM Token Ring card.

A system or network administrator should review the documentation shipped with the network interface card to configure the printer and your computing environment correctly. *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide* is shipped with the Ethernet and token-ring network interface cards. *IBM Network Printers: Twinax/Coax Configuration Guide* is shipped with the Twinax and Coax network interface cards.

Only a system or network administrator should configure your network computing environment for this printer.

Installing a Network Interface Card

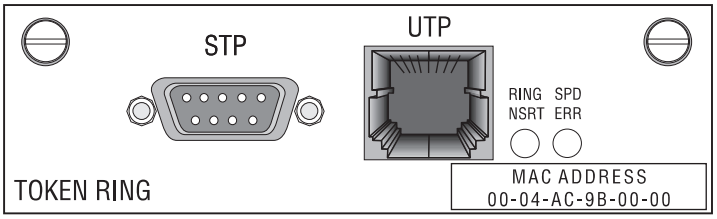
Attention

Follow the instructions for handling static-sensitive devices described on page 147.

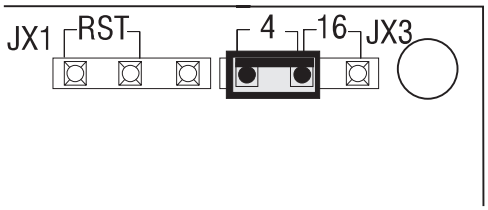
Use the following procedure to install a Network Interface card:

1. Unpack the network interface card, and set aside the software and documentation that arrived with the card.
2. If you are installing a token-ring card, you must complete the following procedure to set the line speed for the card. If you are not installing a token-ring card, skip this step and go to Step 3.

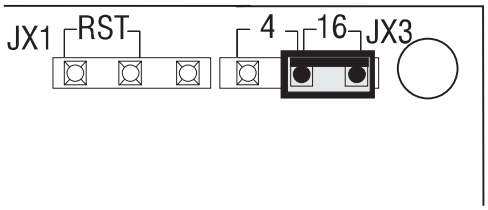
a. Lay the token-ring card in front of you with the faceplate toward you.



b. On the right, rear side are six pins and two small jumpers.
   - If you are installing the card for a 4 Mbps network, place a jumper over the pins labeled 4.



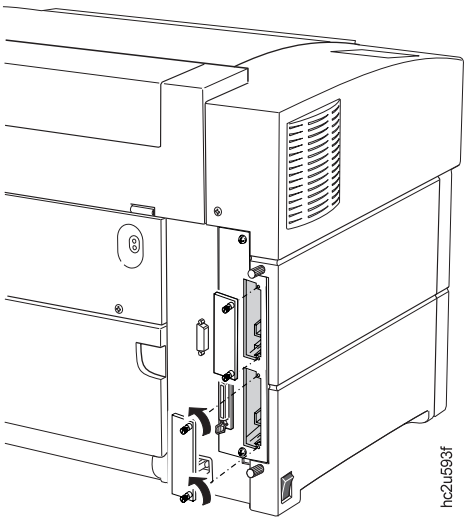
   - If you are installing the card for a 16 Mbps network, place a jumper over the pins labeled 16.



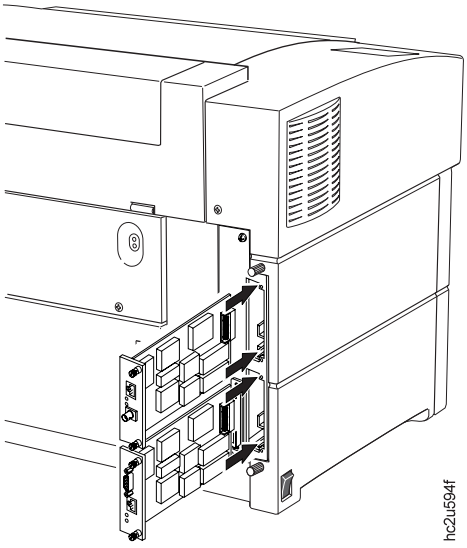
3. When the printer is not printing, switch the printer power off.

   Attention: Do not switch the power off if the printer is printing a page. This action jams the printer.
4. Unplug the printer from the wall outlet.
5. Remove the power cord from the back of the printer.
6. Move to the back of the printer. Two slots for interface cards are located at the right side of the back of the printer. If you are installing only one card, use the top slot.

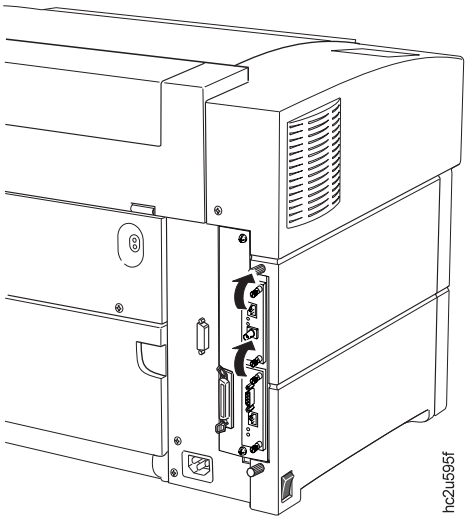
7. Loosen and remove the thumbscrews that hold the slot cover. Remove the cover and store it for future use.



8. Insert the card into the slot, aligning it with the two guides at the top and bottom of the slot. Slide the card vertically into these guides, pushing slowly and firmly until you can feel the card seat into the socket.



9. Tighten the thumbscrews.



10. If you have a second card to install, repeat Steps 7 to 9.
11. Now that you have installed the card, your system administrator will need to configure the printer and its computing environment. See *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide* for Ethernet and token-ring cards. See *IBM Network Printers: Twinax/Coax Configuration Guide* for twinax and coax cards. These documents are shipped with the cards.

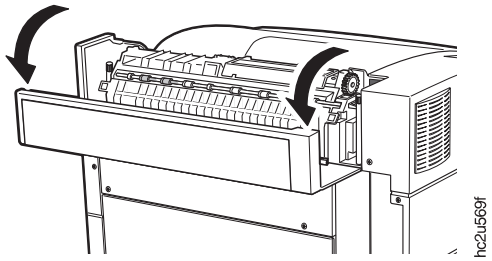
The Duplex Unit

This section describes how to install and remove the duplex unit.

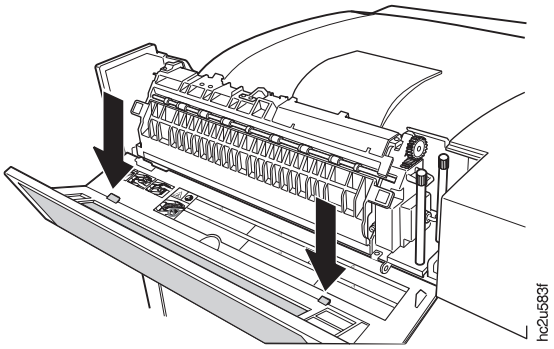
Installing The Duplex Unit

1. Power off and unplug the printer.

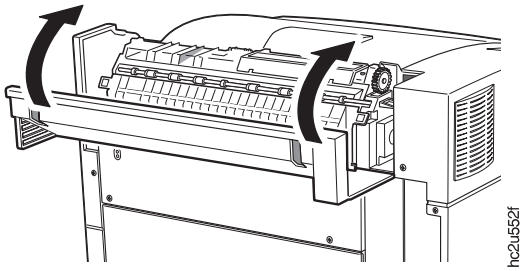
2. Open the fuser cover.



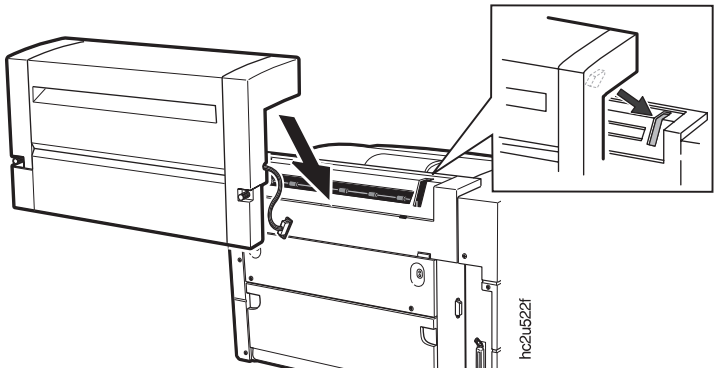
3. Locate the two tabs indicated by the arrows inside the paper exit area. Push them to remove the duplex unit filler panel.



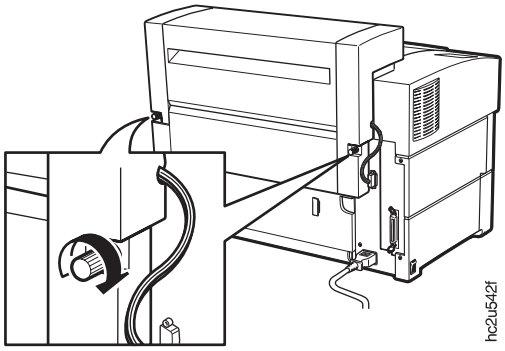
4. Close the fuser cover.



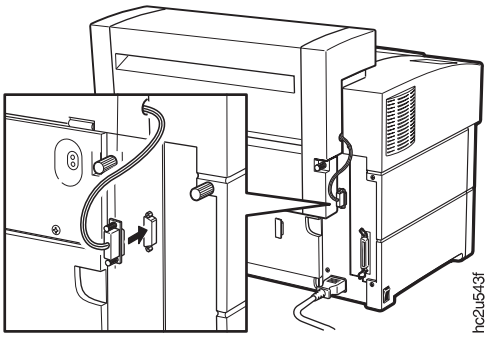
5. Attach the duplex unit. Align the triangular tab on the duplex unit with the corresponding cutout on the fuser cover.



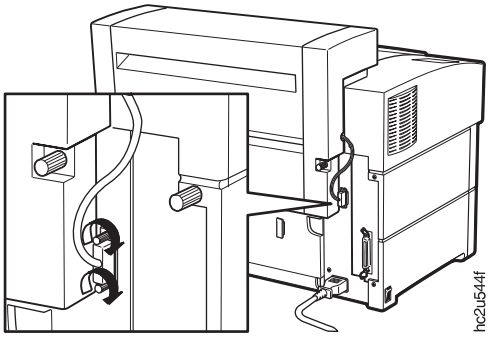
6. Fasten the duplex unit to the printer using the supplied screws.



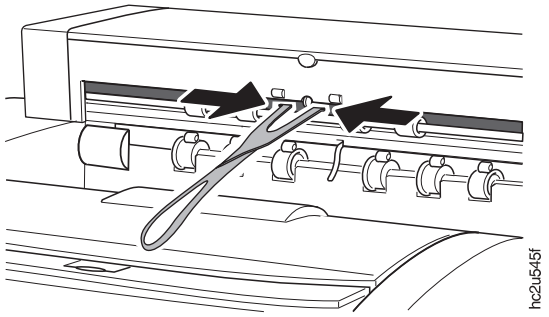
7. Plug the cable of the duplex unit into the connector on the printer.



8. Fasten the connector with the supplied screws.



9. Attach the paper holder.

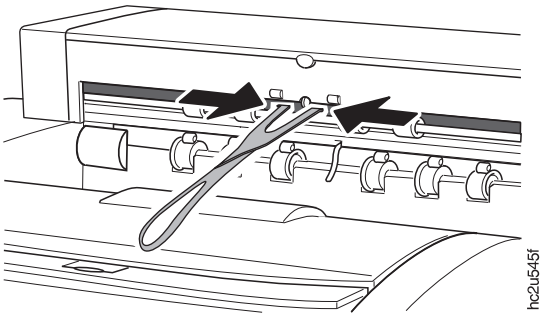


10. To make two-sided printing the printer default, set the Paper Menu DUPLEX item to ON. See “Making Duplex or Simplex Printing the Printer Default” on page 28.
11. To verify that the duplex unit is installed correctly, you can print a list of PCL5e fonts. See “Printing a List of PCL5e Fonts” on page 29

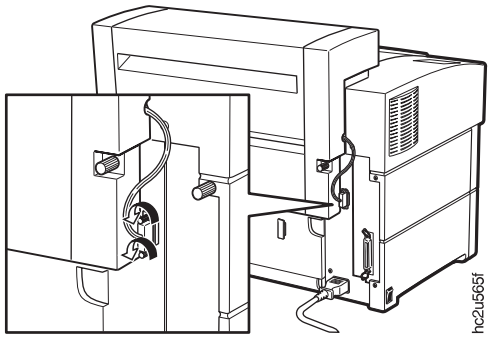
    Attention: During duplex printing, the leading edge of each sheet of paper briefly appears in the exit tray, and then disappears back into the printer. Do not remove these sheets of paper until they reappear with both sides printed.
12. Make sure you update your printer driver to indicate the duplex unit is installed.

Removing the Duplex Unit

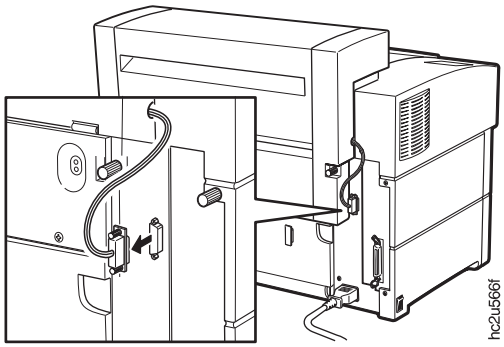
1. Power off and unplug the printer.
2. Remove the paper holder.



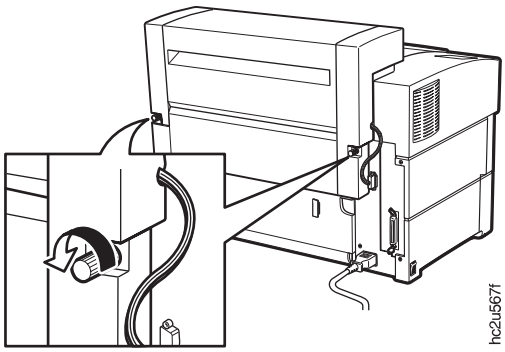
3. Remove the screws securing the duplex unit connector.



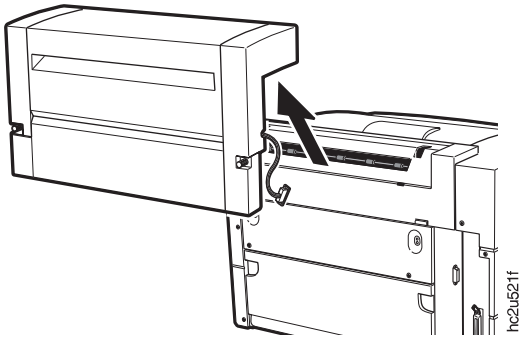
4. Take out the connector.



5. Remove the two screws securing the duplex unit.

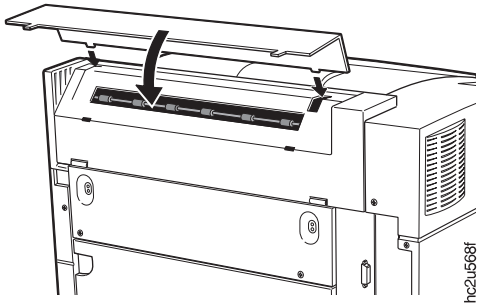


6. Remove the duplex unit.



7. Install the duplex unit filler panel.

   Attention: Do not use the printer with the filler panel removed. Whenever you remove the duplex unit, be sure to replace the filler panel.



Important

InfoPrint 20 supports two paper tray sizes: A4/Letter and A3/Ledger (11 x 17). Use the procedures in this section for either size.

Each 500-sheet paper tray option consists of:

- A paper tray support unit that attaches to the printer
- A paper tray that holds the paper and is inserted into the support unit.

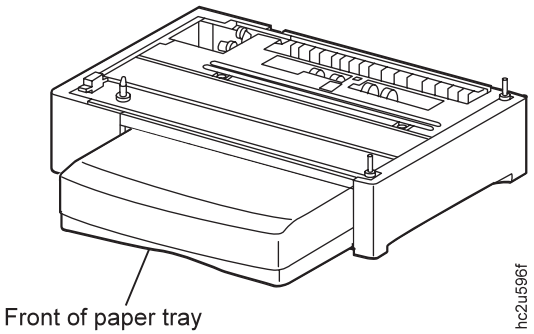
This section describes how to install one or two paper tray support units with 500-sheet paper trays and how to remove and uncouple the two support units. Because this option, when installed, significantly increases the weight of the printer, consider installing the trays after other options are installed.

Installing 500–Sheet Paper Trays

Preparing the Printer

Use the following procedure to prepare the printer before installing paper trays:

1. Switch the printer power off.
2. Unplug the printer from the wall outlet.
3. Remove the power cord from the back of the printer.
4. Unpack the paper tray support unit or units. Place each paper tray support unit on a flat stable surface.



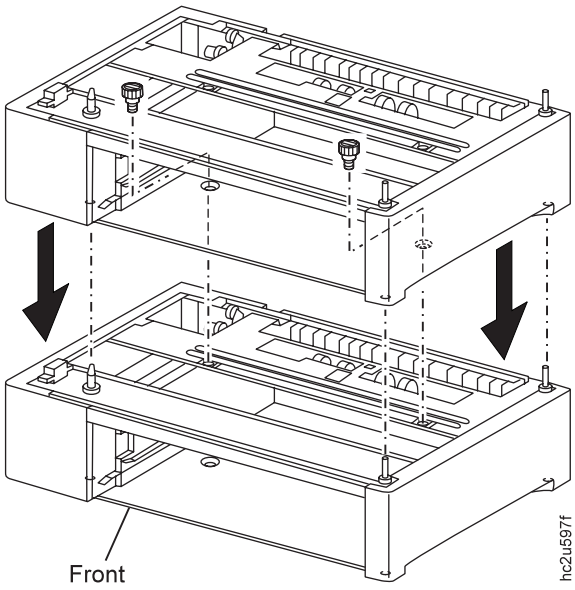
5. Remove the tape and packing materials from the paper tray support unit.
6. Save the packing materials for future use.

7. If you have two trays, go to “Stacking Two 500-Sheet Paper Trays”. Otherwise, go to “Placing the Printer on the Paper Tray Support Unit” on page 166.

Stacking Two 500-Sheet Paper Trays

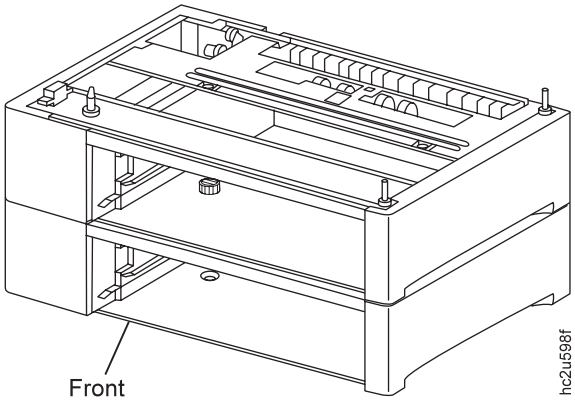
Use the following procedure to stack and fasten two 500-sheet paper tray support units:

1. Lift one of the paper tray support units by the recessed grips and set it on top of the other support unit. The front of each paper tray must face the same direction.



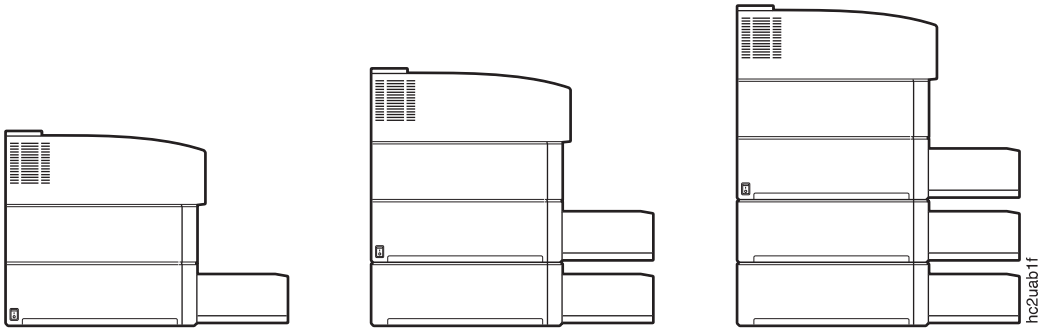
2. Use the two supplied thumbscrews to secure the top unit to the bottom unit.
3. Make sure the upper support unit is aligned with the lower support unit and that the upper unit is correctly seated on the lower unit. The front of

the paper trays should be aligned.



Placing the Printer on the Paper Tray Support Unit

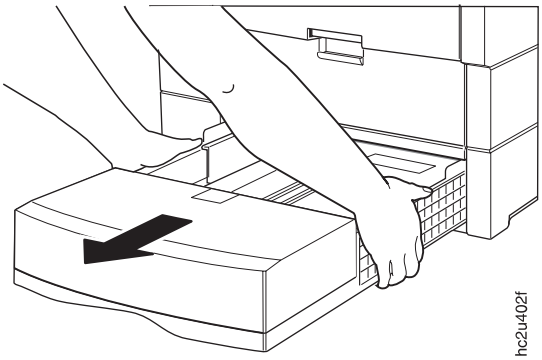
Up to two additional paper trays can be installed below the printer.



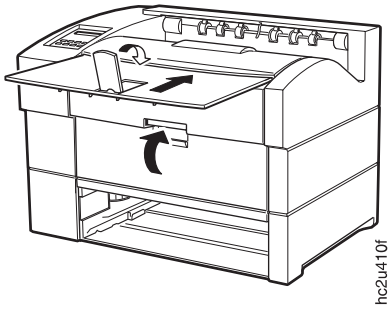
To install the paper tray, do the following:

1. Place the tray on a sturdy, level surface.
2. Power off and unplug the printer.

3. Gently lift the paper tray and remove it from the printer.



4. Close the auxiliary tray, fold the paper stopper, and shut the output tray.



5. Lift the printer and place it on the tray.

CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

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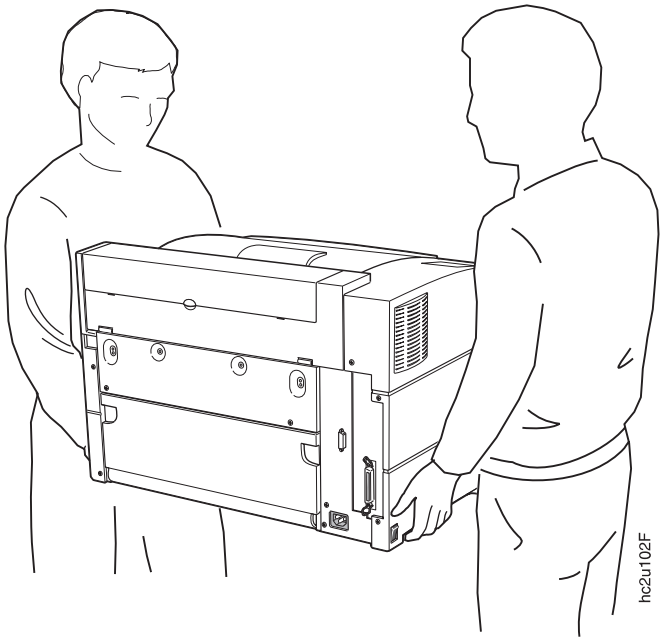
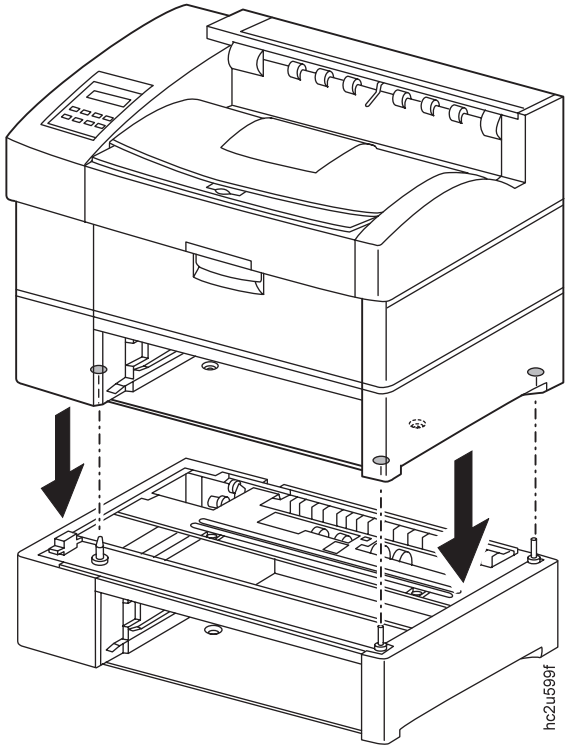
a. Lift the printer by grasping the recessed areas of the bottom edges on the right and left sides, not from the front and back side. Never try to lift the printer while holding any part other than the left and right

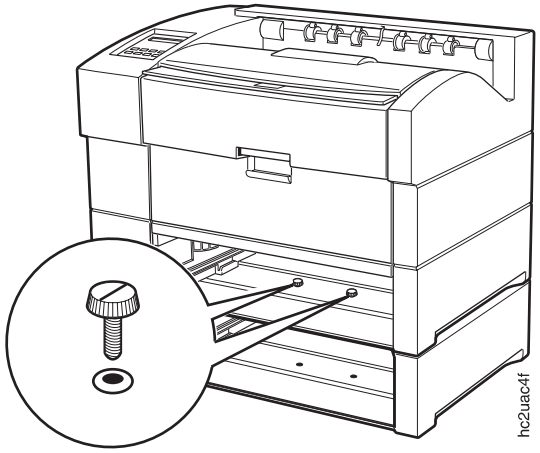
bottom edges.



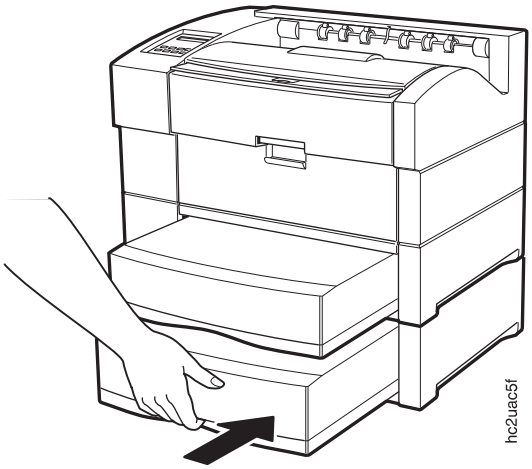
b. Align the two posts on the tray with the holes on the bottom of the printer.



6. Insert the two supplied thumbscrews into the holes on the inside of the tray.



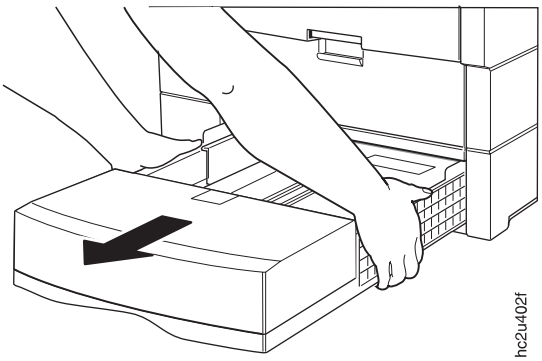
7. Load the paper tray and insert it into the printer. See “Loading the A4/Letter Paper Tray” on page 41 or “Loading the A3/Ledger (11 x 17) Paper Tray” on page 45 if you need information on how to load paper into the tray.



8. Make sure you update your printer driver to indicate Tray 2 or Tray 2 and Tray 3 are installed.

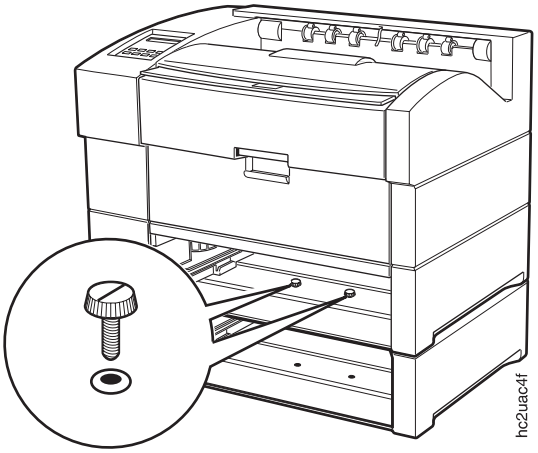
Removing 500–Sheet Paper Trays

1. Power off and unplug the printer
2. Remove all paper trays from the printer.



3. Loosen and remove the two thumbscrews securing the paper tray support unit to the printer. If you are removing both Tray 2 and Tray 3, you only

need to remove the thumbscrews securing Tray 2 to the printer.



4. Lift the printer and place it on a sturdy, level surface. Lift the printer by grasping the recessed areas of the bottom edges on the right and left sides, not from the front and back side. Never try to lift the printer while holding any part other than the left and right bottom edges.

CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

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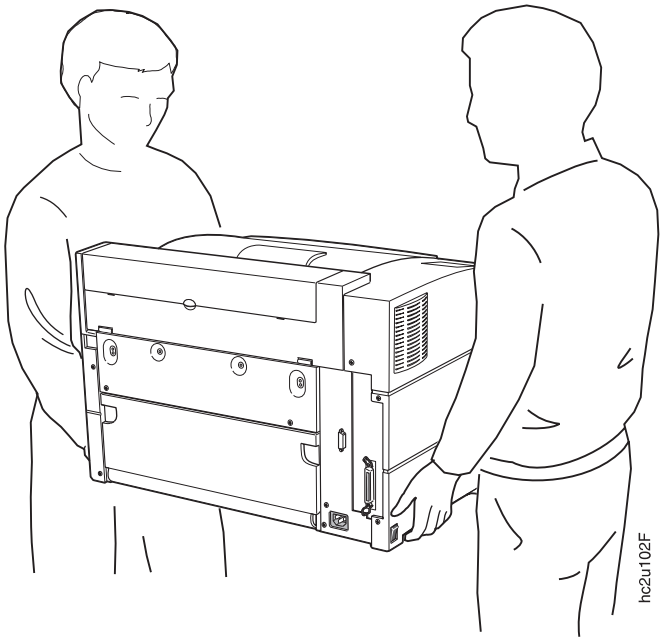
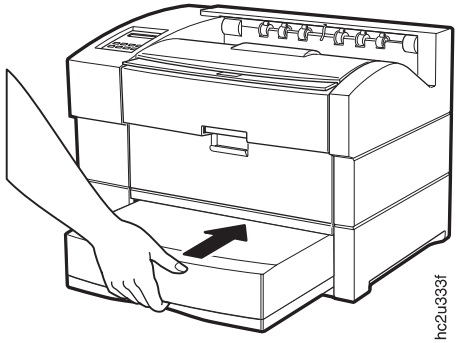


5. Replace the paper tray.



6. Make sure you update your printer driver to indicate which trays (Tray 2 and/or Tray 3) have been removed.

The Envelope Tray

This section describes how to install and remove the envelope tray. See “Selecting Paper and Other Printable Material” on page 34 for information about acceptable envelope sizes for the envelope tray.

Installing the Envelope Tray

Use the following procedure to install the envelope tray:

1. Remove the 500–sheet paper tray from the printer and store it for future use.
2. Unpack the envelope tray.

   Note: Save the packing material for future use.
3. Slide the envelope tray into the paper tray support unit until it clicks into place.
4. See “Loading Envelopes into the Envelope Tray” on page 56 for instructions on loading envelopes and postcards into the envelope tray.
5. Make sure you update your printer driver to indicate the envelope tray has been installed.

   Note: Many applications allow you to specify the input tray and envelope size you want to use. These values will override any value set at the printer.

Removing the Envelope Tray

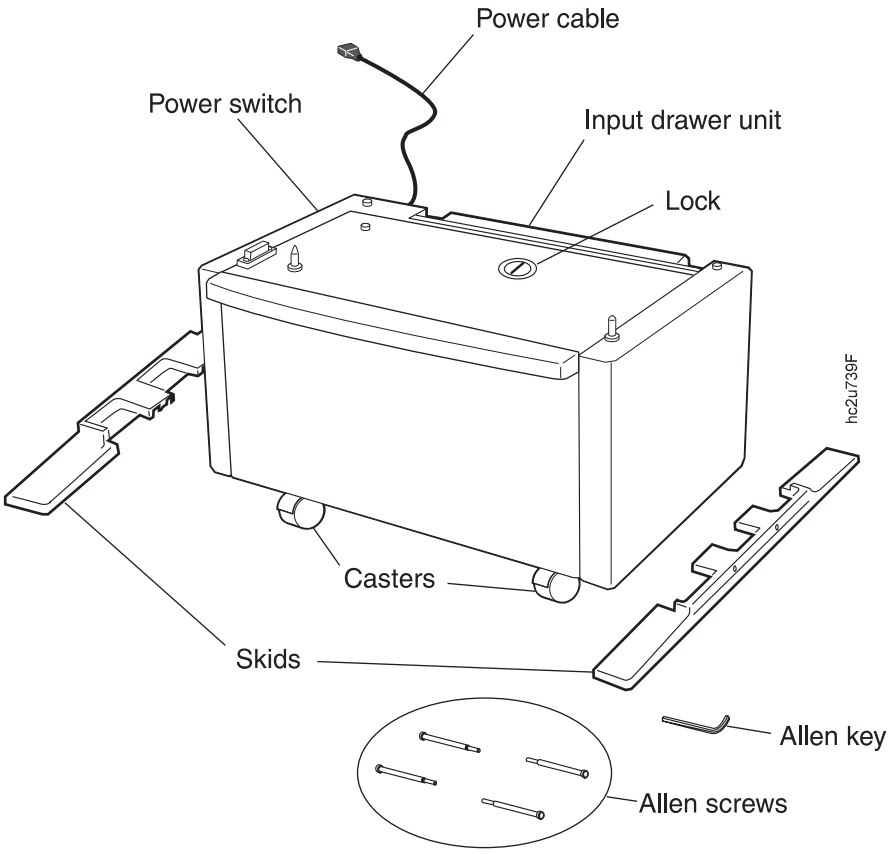
Use the following procedure to remove the envelope tray:

1. Remove the envelope tray from the printer and store it for future use.
2. Slide the 500–sheet paper tray into the printer until it clicks into place.
3. Make sure you update your printer driver to indicate the envelope tray has been removed.

The 2000-Sheet Input Drawer

This section describes how to install and remove the 2000-Sheet Input Drawer. The InfoPrint 20 sits on top of the 2000-Sheet Input Drawer. The 2000-sheet input drawer option consists of:

- An input drawer unit mounted on casters
- Two skids that fit around the casters
- A power cable to connect the 2000-Sheet Input Drawer to the printer
- Four Allen screws
- An Allen key

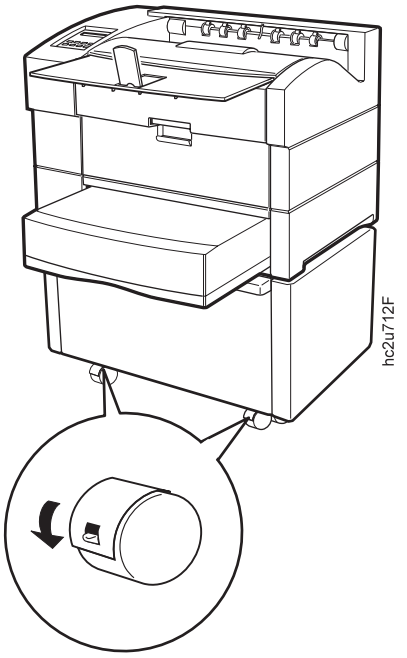


Installing the 2000-Sheet Input Drawer

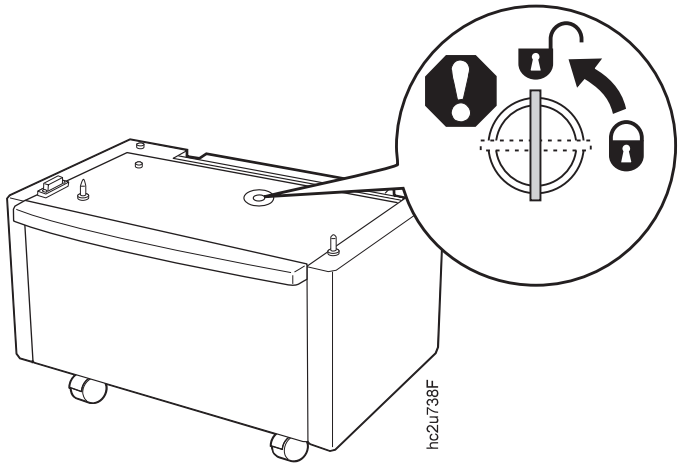
Use the following procedure to install the 2000-Sheet Input Drawer:

1. Switch the printer power off.
2. Unplug the printer from the wall.
3. Remove the power cord from the back of the printer.
4. Unpack the 2000-Sheet Input Drawer and the skids. Remove all packing material from the drawer and the rear cover.

5. Lock the front casters of the 2000-Sheet Input Drawer unit by pressing down on the locking tabs.



6. Twist the tab as shown to unlock the 2000-sheet input drawer.



7. Use the Allen key to secure the skids to the input drawer with the Allen screws as shown.

CAUTION:

<2-39> To prevent the 2000-Sheet Input Drawer from accidentally tipping over, make sure to install the skids.

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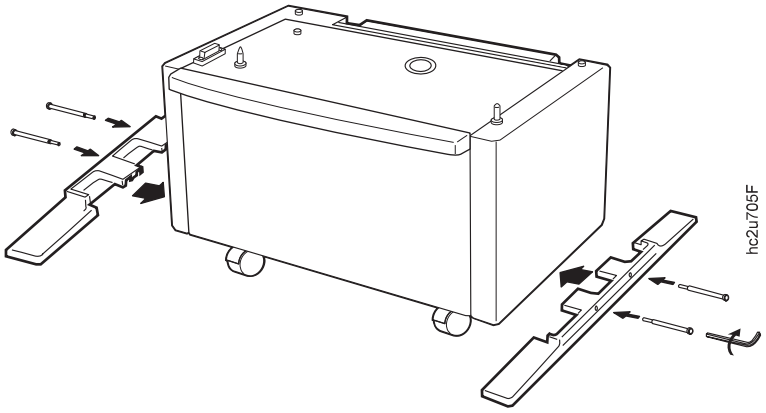

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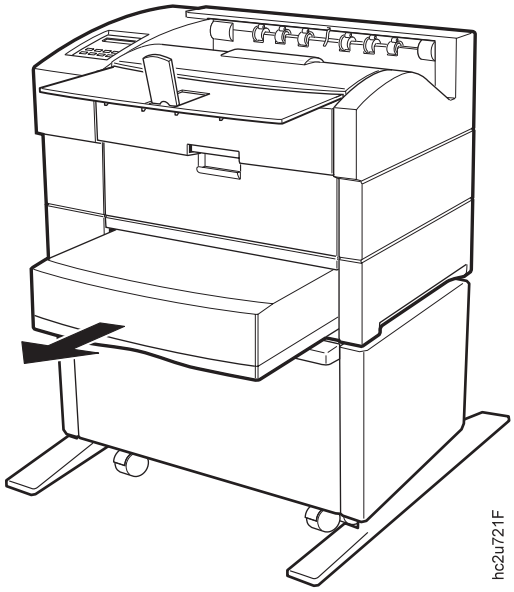
8. Remove Tray 1 (and Tray 2, if installed) from the printer.



9. Lift the printer by grasping the recessed areas of the bottom edges on the right and left sides, not from the front and back side. Never try to lift the printer while holding any part other than the left and right bottom edges.

CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

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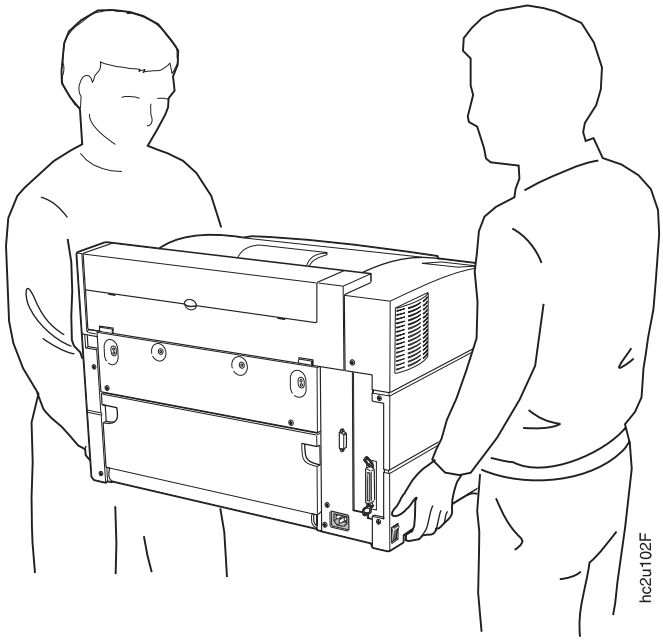
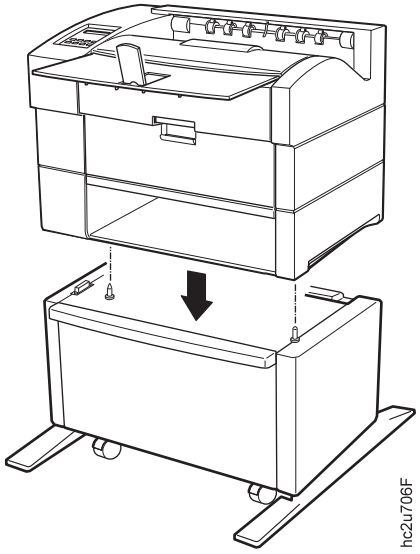
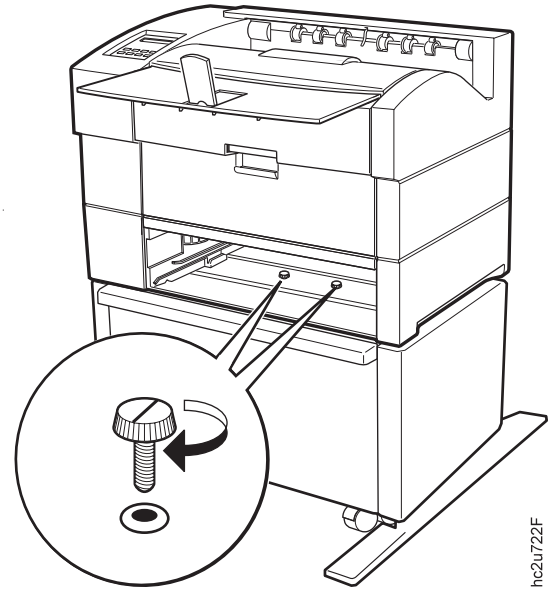


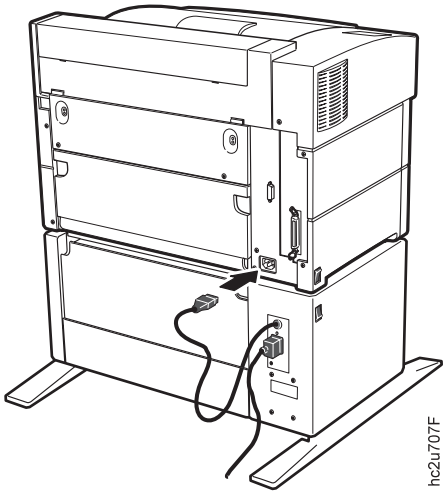
10. Align the posts on the 2000-Sheet Input Drawer with the holes in the bottom of the printer.



11. Secure the printer to the 2000-Sheet Input Drawer using the two supplied thumbscrews, as shown. Use a coin to tighten the thumbscrews.

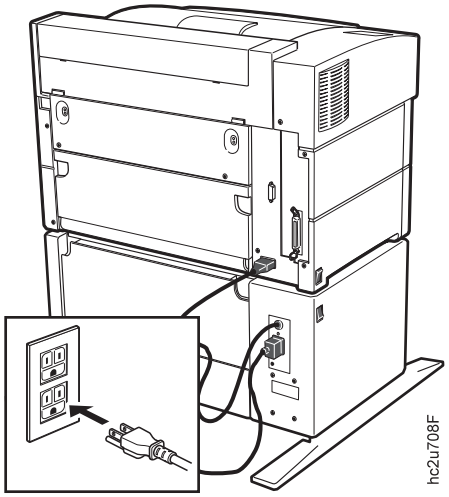


12. Plug the cable from the 2000-Sheet Input Drawer into the power cable outlet on the back of the printer, as shown.

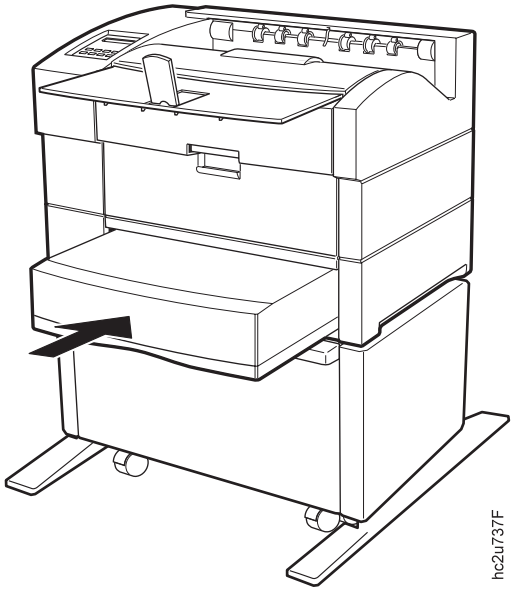


13. Plug one end of the printer power cable into the 2000-Sheet Input Drawer, and plug the other end into the wall outlet.

Note: Always make sure you leave enough room around all power plugs for you to easily disconnect the printer and 2000-Sheet Input Drawer power cord.

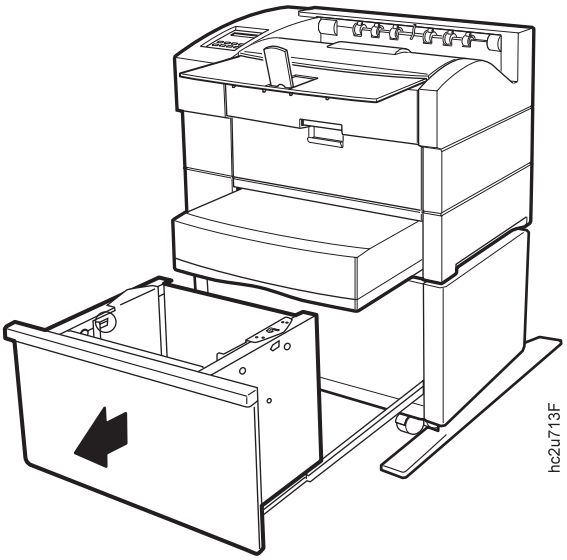


14. Replace Tray 1 (and Tray 2, if installed).

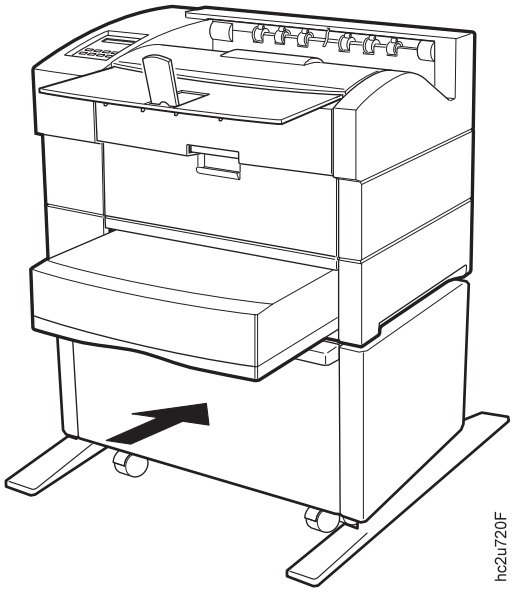


15. Pull the drawer out of the 2000-Sheet Input Drawer unit and load paper into the drawer. See “Loading Paper into the 2000-Sheet Input Drawer”

on page 59 for information on loading paper into the drawer.

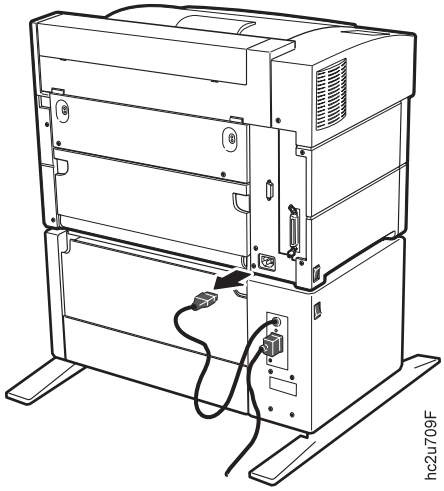


16. Verify that the 2000-Sheet Input Drawer power switch is in the ″on″ position. Close the drawer and switch the printer power on.



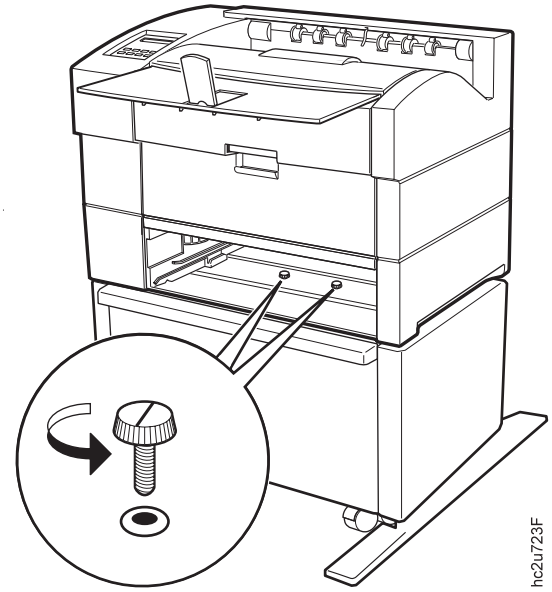
Removing the 2000-Sheet Input Drawer

1. Switch the printer power off.
2. Unplug the 2000-Sheet Input Drawer power cord from the wall.
3. Remove the power cord from the back of the printer.



4. Remove paper Tray 1 (and Tray 2, if installed).

5. Unscrew the two thumbscrews securing the printer to the 2000-Sheet Input Drawer.

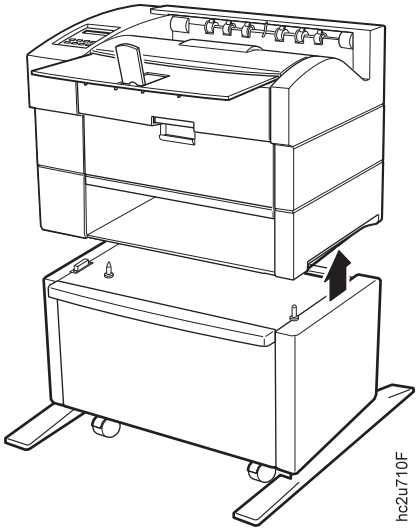


6. Lift the printer off of the 2000-Sheet Input Drawer.

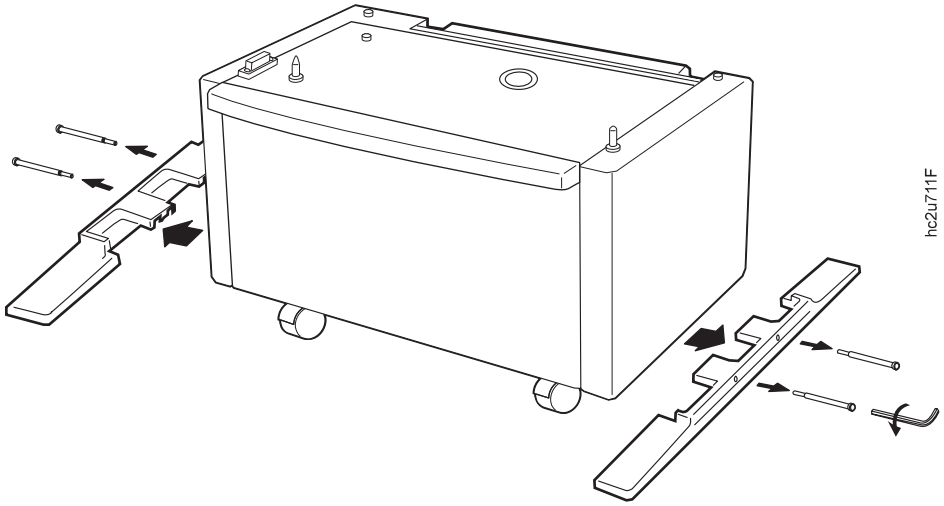
CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

hcsf0231



7. Unscrew the four hex screws with the hex key and remove the skids from the 2000-Sheet Input Drawer unit.



Chapter 9. Configuring Printer Network Addresses

Important

Defining the printer's network address should be performed by a network administrator or someone familiar with network addresses. If you have *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide*, please refer to it when you configure your Ethernet or token-ring card.

Use this section to set the following values from the operator panel:

- IP address
- Subnet mask
- Gateway address
- Locally administered MAC address

Note: The MAC address is the Globally Administered Address (GAA). The MAC address can be changed to the Locally Administered address (LAA).

Setting IP, Subnet Mask, and Gateway Addresses

To set an IP, subnet mask, or gateway address for the printer, perform these steps:

1. Press the **Online** key to take the printer OFFLINE.
2. Press the **Menu** key until the operator panel displays ETHERNET MENU or TOKEN RING MENU.
3. Press the **Item** key until the operator panel displays the address to change (IP ADDRESS, SUBNET MASK, or GATEWAY ADDRESS). This example shows how to change the IP ADDRESS.
4. Press the **Enter** key. For a new printer whose IP address has not yet been set, the operator panel displays:

   ```
   IP ADDRESS 0<0.0.0 *
   ```

   The "<" indicates the field whose value you can change at this point.
5. Press the **Value** key until the desired value is displayed. The range of the address values is zero to 255. To decrement the value, simultaneously press the **Value** key and the **Shift** key. To increment or decrement the value by 10, press and hold the keys.

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6. When the operator panel displays the value you want, press **Enter**. The "<" moves to the next value, for example:

   ```
   10.0<0.0
   ```

7. Press the **Value** key until the desired value is displayed, then press the **Enter** key.
8. Repeat step 7 until all four values have been set, then press the **Enter** key to set the address. The value has been set if an asterisk (*) displays to the right of the value, for example:

   ```
   9.99.40.2 *
   ```

9. Press the **Online** key to return the printer to READY status. The panel displays the message I/O INITIALIZING and writes the new addresses to non-volatile memory. (This process takes a few minutes.) **Do not power off the printer** while the I/O INITIALIZING message is displayed.

Setting the Locally Administered MAC Address (LAA)

Network Administrator Tip

Each token-ring network interface card comes with a unique, pre-assigned MAC address printed on its faceplate and set at the factory. The following procedure allows you to use locally administered addresses (LAA) instead of the factory value. Resetting the printer to factory defaults sets the LAA back to the MAC address. IBM recommends that you contact your network administrator before you change the MAC address because each LAA must be unique on the network.

To change the LAA address for the printer:

1. Press the **Online** key to take the printer offline.
2. Press the **Menu** key until the operator panel displays TOKEN RING MENU.
3. Press the **Item** key until the operator panel displays MAC ADDRESS.
4. Press the **Enter** key. For a new printer whose MAC address has not yet been changed, the operator panel displays the unique MAC address that came with the card, for example:

   ```
   MAC ADDRESS 01< 04-AC-9A-00-00
   ```

   The "<" indicates the value you can change at this point. Notice that the first pair of values (01, in this case) is shown on the same line as "MAC ADDRESS".
5. Press the **Value** key. The asterisk (*) goes away and the value is incremented by one. The range of the address values is zero to 255 hex

(that is, FF). To decrement the value, simultaneously press the **Value** key and the **Shift** key. To increment or decrement the value by 10, press and hold the keys.

6. Press the **Value** key until the desired value is displayed, then press **Enter** to set the value. The "<" moves to the next value, for example:

   ```
   04<AC-9A-00-00
   ```

7. Press the **Value** key until the desired value is displayed, then press the **Enter** key.
8. Repeat step 7 until all six value pairs have been set, then press the **Enter** key to set the LAA address. The value has been set if an asterisk (*) displays to the right of the value, for example:

   ```
   MAC ADDRESS 01- 04-9A-01-02-02 *
   ```

9. Press the **Online** key to return the printer to READY status. The panel displays the message I/O INITIALIZING and writes the new addresses to non-volatile memory. (This process takes a few minutes.) **Do not power off the printer** while the I/O INITIALIZING message is displayed.

Appendix A. Troubleshooting

This section provides simple methods for detecting and solving some of the problems that most frequently occur in printing environments. If your printer does not print your job, follow these steps:

1. Turn the printer off and leave it off for approximately ten seconds. Turn it back on. This action resets the printer to its programmed configuration and may clear the error.
2. Print a sample page to determine whether the problem is with the printer or with the network or cabling leading to the printer. The printer configuration page can be used as a sample page; see “Printing the Printer Configuration Page” on page 25 for instructions. If the problem is with the printer, it is likely that the printer will not print the configuration page. If the problem is in the network or cabling leading to the printer, the configuration page will still print.
3. See “Troubleshooting Checklist” to help identify and solve problems.
4. Call your service representative. If you cannot solve a problem, call your point of purchase or IBM customer technical support (1-800-358-6661 in the U.S.A. and Canada).

   Notes:

   a. Have your printer serial number ready. The serial number is on the back of the printer. It is also listed in the Printer Details section of the printer configuration page (see “Printing the Printer Configuration Page” on page 25). If you are asked for a machine type, specify 4320.

   b. If you need IBM operating system support (for example, AIX, OS/2, OS/400, and MVS), contact IBM software support (1-800-237-5511 in the U.S.A., 1-800-465-2222 in Canada).

Troubleshooting Checklist

Symptom	Action
A message appears in the message display area	See “Appendix C. Printer Messages” on page 207.

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Symptom	Action
Solid rectangles in the message display area	This usually indicates a problem with the controller card or one of its options (SIMM or hard drive). **Response**: Make sure the SIMMs are in the correct group of sockets and are installed correctly. See “SIMMs and Hard Drives” on page 148 for instructions on installing SIMMs and the hard drive.
No display messages	No message is in the message display area. **Response**: The printer may not be turned on or the power cord has become unplugged. Press the 1 on the power switch to power on the printer. Make sure the power cord is plugged in.
Changed toner cartridge and the printer does not work	**Response**: Turn off the printer. Open the printer and reseat the toner cartridge. Make sure you remove all tape and packaging material, including the yellow tape at the end of the cartridge. See “Changing the Toner Cartridge” on page 132.

Symptom	Action
Printer never prints the job	**Responses**: 1. Make sure that the printer is running by printing a configuration page. See “Printing the Printer Configuration Page” on page 25. Check the settings for PORT TMEOUT and PERSONALTY for possible problems. See the appropriate menu for information about the settings for your attachment: • “Token Ring Menu” on page 110 • “Ethernet Menu” on page 113 • “Parallel Menu” on page 98 • “Coax Setup Menu” on page 122 • “Twinax Setup Menu” on page 124 2. Make sure your printer driver is installed and is connected to the correct port. 3. For parallel printing, verify the connection by copying a text file (such as config.sys) to that port. If this file prints successfully, suspect a driver problem. Also, make sure you use properly shielded and grounded cables and connectors (IBM part number 63H1956 or its equivalent) that are no more than ten feet (3 meters) in length. 4. For LAN printing problems, print a configuration page (see “Printing the Token-Ring Network Interface Card Configuration Page” on page 29 or “Printing the Ethernet Network Interface Card Configuration Page” on page 29. This verifies the card is connected and functional. If the configuration page options are not available on the Test Menu, reseat the card (see “Network Interface Cards” on page 154). If problems persist, you may need a new card. Also, refer to *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide*, which is shipped with the Ethernet and token-ring network interface cards. 5. For twinax/coax printing problems, press the **TEST** button on the back of the twinax or coax card to generate an internal configuration page. This verifies that the card is connected and functional. Also, refer to *IBM Network Printers: Twinax/Coax Configuration Guide*, which is shipped with the twinax and coax network interface cards.
Wrong size paper selected	Check the SOURCE setting in the Paper Menu. See “Paper Menu” on page 90. Note that the job value (set using the printer driver or the application) will override the panel setting. Also verify the AUXSIZE value set in the Paper Menu.

Symptom	Action
Paper selected from wrong source	The printer automatically looks for paper in other trays when the following situations occur: • The requested tray contains the wrong size paper. • The requested tray is empty **and** the Paper Menu TRAY SWITCH item is ON. If the printer cannot find the correct size paper in any tray, it displays `11 LOAD size IN tray`, where tray is the **last** tray it looked in, not necessarily the tray you specified. **Response**: Load the correct size paper or select a different tray. **Notes:** 1. To turn tray switching off for empty tray conditions, set the Paper Menu TRAY SWITCH item to OFF. 2. To remove a specific tray from the automatic tray switching sequence for empty tray conditions, set the appropriate Paper Menu items to ON: TRAY1 PROT for Tray 1, TRAY2 PROT for Tray 2, TRAY3 PROT for Tray 3, or AUXTRAYPROT for the auxiliary tray. 3. Tray switching is automatic when the printer detects the wrong size paper in the requested tray. You cannot turn this type of switching off; nor can you "protect" trays from being included in this switching sequence.
Tray switching does not work	**Responses**: 1. Make sure TRAY SWITCH is set to ON on the Paper Menu. See "Paper Menu" on page 90. 2. Tray switching does not occur when two trays have the same size paper but different orientations. For example, if Tray 1 and Tray 3 both have letter-size paper, but Tray 1 is short-edge feed and Tray 3 is long-edge feed, tray switching will not occur. Reload the paper so that the orientation matches. See "Chapter 4. Paper Handling" on page 33.
Pages lost after clearing paper jam	Set JAMRECOVERY to ON in the Configuration Menu or using the printer driver. (The driver setting overrides the menu setting.) See "Configuration (Config) Menu" on page 95. Note that this will decrease performance.

Symptom	Action
Printing is too slow	**Responses**: 1. Consider setting JAMRECOVERY to OFF in the Configuration Menu or by using the printer driver. (The driver setting overrides the menu setting.) See “Configuration (Config) Menu” on page 95. 2. If you have installed extra memory, make sure the printer recognizes it. Print a configuration page (see “Printing the Printer Configuration Page” on page 25). Under “Installed Options” look for TOTAL MEMORY. If the printer does not recognize all of the memory you have installed, remove and reseat the memory SIMM. If reseating the memory SIMM does not correct the problem, replace it. 3. For IPDS, try setting VPA CHK to OFF in the IPDS Menu. 4. If you print A4 or Letter-size paper, make sure you load the paper long-edge first. See “Loading the A4/Letter Paper Tray” on page 41.
Added paper and the printer does not work	You have added or changed paper and now the printer will not print. **Responses**: 1. Open and close the printer tray and make sure it is positioned correctly. 2. Make sure that paper is loaded correctly with paper under the retaining clips. See “Chapter 4. Paper Handling” on page 33 for instructions on loading paper.
Printer prints wrong font	You started a print job and the font you see is not what you want. **Responses**: 1. If you are printing IPDS jobs, see if you have turned on font substitution (FONT SUB set to ON on the IPDS Menu). See “IPDS Menu” on page 104. 2. Print a list of fonts for the type of data you are printing. See “Printing a List of PCL5e Fonts” on page 29, “Printing a List of PostScript Fonts” on page 30, or “Printing a List of IPDS Resident Fonts” on page 30. 3. The problem may also be with the software; check to see that you have loaded the correct fonts.
Duplex setting is ignored	The DUPLEX setting on the Paper Menu is the printer default. Your application or driver settings override this default. Make sure that the application, driver, or both specify the correct duplex setting.

Symptom	Action
PostScript printing problem	If your printer is not printing PostScript jobs correctly, the printed output will be unformatted and will include unrecognizable characters (including %% identifiers and other font information). Some print jobs such as screen dumps and PCL5e jobs may print correctly. **Responses**: 1. Make sure you have a PostScript printer driver installed and that it is connected to the correct port. 2. If the driver is installed and connected correctly, make sure your printer has enough memory (see “Memory Requirements” on page 5). If it does have enough memory, suspect a problem with the PostScript printer driver or a problem with the print job. 3. If you use either an Ethernet or token-ring connection, make sure the PERSONALTY item in the Token Ring Menu or the Ethernet Menu is set to AUTO or PS. AUTO allows the printer to handle any data stream; PS dedicates the card to PostScript jobs. If PERSONALTY is set to either PCL or IPDS, you cannot print PostScript jobs using the card. 4. Set the PRINT ERRS item to ON in the PS Menu (see “PS Menu” on page 103).
IPDS printing problem	IPDS jobs are not printing. **Responses**: 1. Print a configuration page. See “Printing the Printer Configuration Page” on page 25. If the controller recognizes the IPDS feature, the configuration page will list the IPDS menu and Installed options will list “IPDS”. If IPDS is not listed, remove and reseat the IPDS SIMM. If reseating the SIMM does not correct the problem, replace the SIMM. 2. If you use either an Ethernet or token-ring connection, make sure your printer is configured for TCP/IP. You cannot send IPDS jobs to the printer using an Ethernet or token-ring card that is not configured for TCP/IP. See *IBM Network Printers: Ethernet and Token Ring Quick Configuration Guide* for more information about configuring Ethernet and token-ring cards. 3. If you use either an Ethernet or token-ring connection, make sure the PERSONALTY item in the Token Ring Menu or the Ethernet Menu is set to AUTO or IPDS. AUTO allows the printer to handle any data stream; IPDS dedicates the card to IPDS jobs. If PERSONALTY is set to either PCL or PS (PostScript), you cannot print IPDS jobs using the card. 4. Make sure you have enough memory. See “Memory Requirements” on page 5.

Symptom	Action
Parallel attachment printing problems	Make sure your printer driver is installed and connected to the correct port. Also, make sure you use properly shielded and grounded cables and connectors (IBM part number 63H1956 or its equivalent) that are no more than ten feet (3 meters) in length.
Poor quality shading patterns	**Responses**: 1. Make sure the QUALITY item in the Config Menu is set to REFINE. See “Configuration (Config) Menu” on page 95. Also make sure your printer driver or printer application specifies Edge Refinement. Values set in print jobs (either by the print application or the printer driver) override values you set at the printer. 2. Try increasing the print density if shading is too light. If shading is too dark, try decreasing print density. See “Adjusting Print Density” on page 30.
Any print quality problem	The quality of the printed output is not acceptable. Examples of unacceptable output include light printing, streaks, splotches, random deletions, blank pages, and so on. See “Appendix B. Print Quality Problems” on page 199 for a quality-check procedure and samples of print quality problems.
Blank pages, double sheet feeds	**Responses**: 1. If all sheets are blank, the toner supply could be low without the toner sensor detecting it. Replace the toner cartridge. See “Changing the Toner Cartridge” on page 132 for instructions on removing and replacing the toner cartridge. 2. Random blank pages during a print job can be caused by multiple sheets of paper being fed through the machine simultaneously. Reload the paper tray with fresh, dry paper. Fan the paper before loading it. If the problem still exists with the new toner cartridge installed, consider replacing the usage kit. See “Changing the Usage Kit” on page 136. 3. If you are using custom forms, make sure your application is setting the correct margin. See “Loading Custom Paper and Envelopes into the Auxiliary Tray” on page 54 for more information.

Symptom	Action
Paper jams in the printer repeatedly	**Responses:** 1. Make sure that the paper tray guides are adjusted correctly for the size paper you are using. In particular, make sure the rear guide rests lightly against the back of the paper stack. 2. Do not refeed the same sheet of paper. 3. The paper you are using in the printer may not be compatible with your printer. Verify that the paper you are using conforms to the specifications for the printer. See “Selecting Paper and Other Printable Material” on page 34. 4. Check for obstructions in the paper path. Obstructions may include paper clips and corners of previously jammed paper. 5. Check the paper supply tray for damaged paper. 6. Reload the paper tray with fresh, dry paper. Fan the paper before loading it. 7. For duplex jams, ensure that the duplex unit is installed correctly. See “The Duplex Unit” on page 157.
Cleared jam, printer does not work	**Response:** Open and close the top cover to reset the printer following a paper jam.
The printer takes too long to start printing	The printer is frequently “warming up”. **Response**: Change the value for the power-saving mode (or sleep mode) to a larger value. See “Changing the Power Savings (Sleep Mode) Interval” on page 31 for instructions on how to change the setting.
Factory defaults did not get reset	Invoking the FACTORY DEFAULT item on the Test Menu resets **most** values to the factory defaults. Some values do not get reset. These values include LANGUAGE, AUXSIZE, PCL SAVE, PS SAVE, BI-DI, IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, and MAC ADDRESS. **Response:** To reset all values other than the internet addresses (IP ADDRESS, SUBNET MASK, GATEWAY ADDRESS, and MAC ADDRESS), do one of the following: • For the A4 paper group: power on the printer while simultaneously pressing the **Cancel Print** key. COLD RESET A4 appears in the message display area. • For the LTR (Letter) paper group: power on the printer on while simultaneously pressing the **Online** key. COLD RESET LTR appears in the message display area. IBM recommends printing a printer configuration page before you do a reset, so you can restore old settings if necessary.

Symptom	Action
Problems with pre-printed forms	**Response:** Allow 5 mm between printed information and pre-printed lines, cuts, or perforations on the pre-printed forms.
Printer does not work after powering it off and then on.	**Response:** Power off again. Wait ten seconds, and then power on.
Excessive paper curling	**Response:** 1. Make sure the paper drawers are installed correctly. 2. Make sure paper meets specifications. See “Selecting Paper and Other Printable Material” on page 34. 3. If the paper is stored at a different temperature or humidity than the printer room, let the paper adjust to the new environment. Leave the paper in its wrapper while it adjusts. 4. Store paper in its original wrapping. 5. Turn the paper over in its tray to see if the curl improves. 6. Use fresh paper (paper recently removed from its wrapper). Do not use stale paper (paper that has been out of its wrapper for several days.)

Appendix B. Print Quality Problems

Use the following procedure to try to resolve print quality problems, including light printing, streaks, splotches, random deletions, blank pages, and so on. See the rest of this chapter for samples of print quality problems.

Important

Your printer driver or application may allow you to select print quality settings. If it does, these settings override values set at the printer. When the following steps recommend changing a value at the printer, make sure you also change the setting in your driver.

1. Print a demo page. Verify that it has the same print quality problem. If not, suspect a problem with your job. To print a demo page:
   a. Make sure the printer is offline. If the printer is online, press the **Online** key to take it offline.
   b. Press the **Menu** key once. TEST MENU appears in the message display area.
   c. Press the **Item** key until you see PRINT PCL DEMO.
   d. Press the **Enter** key.
   e. To restore the printer to READY status, press the **Online** key.
2. If printing is too light, make sure the QUALITY item on the Configuration Menu is not set to ECONO. Also, try increasing the DENSITY setting to a higher value. See "Configuration (Config) Menu" on page 95.
3. If printing is dark, try setting QUALITY to REFINE. Also, try decreasing the DENSITY setting to a lower value.
4. If image quality is poor, set QUALITY to REFINE. Also, try decreasing the DENSITY setting to a lower value.
5. If small single-byte characters or any double-byte characters are hard to read, set QUALITY to REFINE. Also, try decreasing the DENSITY setting to a lower value.
6. Make sure that the paper being used is fresh and dry and meets specifications. See "Selecting Paper and Other Printable Material" on page 34 for more information.
7. Install a new toner cartridge. Light prints may indicate that you need to replace the toner cartridge. See "Changing the Toner Cartridge" on page 132 for instructions on removing and replacing the toner cartridge.
8. If the problem involves spots or streaks, print several test pages to clean out contamination.

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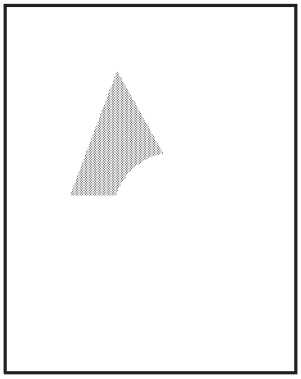
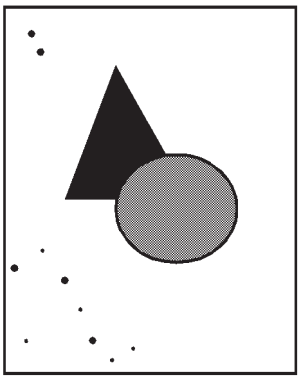
9. If the problem is with complex graphics or images and the message MRT COMPRESSION displays, try changing the PAGEPROT menu item to ON. This item can be individually set in specific data stream menus (PCL Menu, PS Menu, or IPDS Menu.) You may also need more memory. See “Memory Requirements” on page 5 for information about memory requirements.
10. If you have an EDGE-EDGE setting set to ON, set it to OFF. EDGE-EDGE can be found on the following menus:
    - “PCL Menu” on page 99
    - “PS Menu” on page 103
    - “Coax Setup Menu” on page 122
    - “Twinax Setup Menu” on page 124
    - “IPDS Menu” on page 104
11. Consider replacing the fuser. See “Changing the Usage Kit” on page 136.

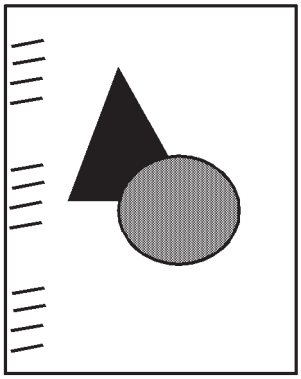
Print Is Too Light

Possible Causes	Actions You Should Take	Print Sample
Economy mode is set on	Make sure economy mode is not set. Check your print driver settings and also see “Configuration (Config) Menu” on page 95.	
Density is set too low	Reset it to a higher value if necessary. See “Configuration (Config) Menu” on page 95.	
There is moisture in the paper	Load fresh, dry paper	
The toner cartridge is low on toner	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	
The toner cartridge is damaged	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	

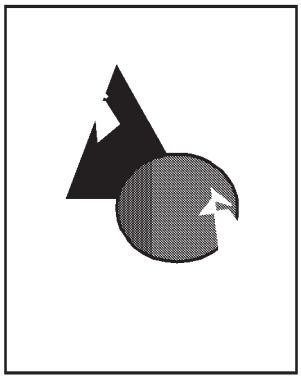
Toner Spots on the Print

Possible Causes.	Actions You Should Take	Print Sample
Paper does not meet specification	Use recommended paper (see "Selecting Paper and Other Printable Material" on page 34)	
The toner cartridge is damaged	Replace the toner cartridge (see "Changing the Toner Cartridge" on page 132	

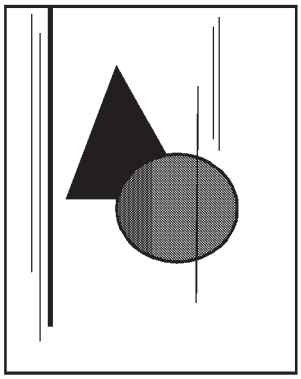
Repetitive Marks on the Print

Possible Causes	Actions You Should Take	Print Sample
The paper path is contaminated	Print several blank sheets of paper to clear out the contamination	
The toner cartridge is damaged	Replace the toner cartridge (see "Changing the Toner Cartridge" on page 132	

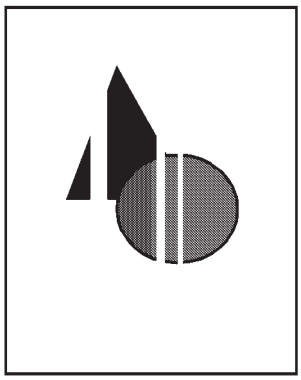
Random Deletions or Light Areas on the Print

Possible Causes	Actions You Should Take	Print Sample
There is moisture in the paper	Load fresh, dry paper	
Paper does not meet specification	Use recommended paper (see “Selecting Paper and Other Printable Material” on page 34)	
The toner cartridge seal is still in place	Remove the toner cartridge seal	

Vertical Marks on the Print

Possible Causes	Actions You Should Take	Print Sample
The toner cartridge is damaged	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	

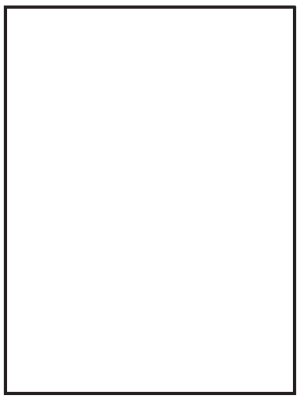
Vertical Bands of Deletions or Light Areas on the Print

Possible Causes	Actions You Should Take	Print Sample
The toner cartridge is not installed correctly	Reinstall the toner cartridge	
The toner cartridge is damaged	Replace the toner cartridge (see "Changing the Toner Cartridge" on page 132	

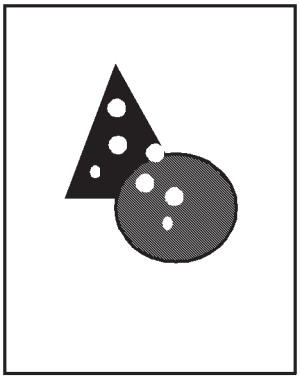
Entire Print is Black

Possible Causes	Actions You Should Take	Print Sample
The toner cartridge is damaged	Replace the toner cartridge (see "Changing the Toner Cartridge" on page 132	
The printer power supply has failed	Call for service	

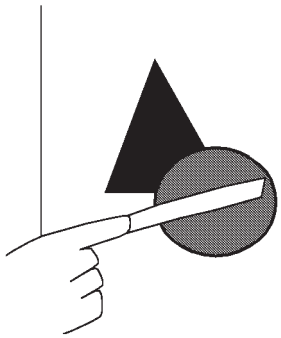
Entire Print Is Blank

Possible Causes	Actions You Should Take	Print Sample
The toner cartridge seal is in place	Remove the toner cartridge seal	
There was a multiple sheet feed	Fan the paper	
The toner cartridge is low on toner	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	
The toner cartridge is damaged	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	
The printer power supply has failed	Call for service	

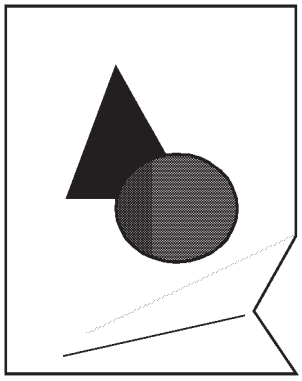
White Spots Within Black Image Area

Possible Causes	Actions You Should Take	Print Sample
Paper does not meet specification	Use recommended paper (see “Selecting Paper and Other Printable Material” on page 34)	
The toner cartridge is damaged	Replace the toner cartridge (see “Changing the Toner Cartridge” on page 132	

Printed Image Rubs Off or Smears

Possible Causes	Actions You Should Take	Print Sample
There is moisture in the paper	Load fresh, dry paper	
Paper does not meet specification	Use recommended paper (see "Selecting Paper and Other Printable Material" on page 34)	
The top cover is not fully closed	Close the top cover	
The fuser is not functioning properly	Consider replacing the usage kit. See "Changing the Usage Kit" on page 136	

The Print Is Damaged

Possible Causes	Actions You Should Take	Print Sample
Paper does not meet specification	Use recommended paper (see "Selecting Paper and Other Printable Material" on page 34)	
There is excessive moisture in the paper	Load fresh, dry paper	
Damaged paper has been loaded in the paper tray	Load fresh, dry paper	

The Printed Image Is Blurred

Possible Causes	Actions You Should Take	Print Sample
Paper does not meet specification	Use recommended paper (see "Selecting Paper and Other Printable Material" on page 34)	
There is moisture in the paper	Load fresh, dry paper	

Appendix C. Printer Messages

This chapter lists printer messages. Printer status messages are listed alphabetically in the next section, “Status Messages”. Error messages are preceded by a number; see “Error Messages” on page 213.

Status Messages

COLD RESET A4

Meaning: The printer is powering up and resetting all menu values to the factory defaults. The A4 paper group is the default.

Action: None required; however, you need to restore any unique settings for the printer (such as the default tray).

COLD RESET LTR

Meaning: The printer is powering up and resetting all menu values to the factory defaults. The LTR paper group is the default.

Action: None required; however, you need to restore any unique settings for the printer (such as the default tray).

CONTEXT SAVE ADJUSTED

Meaning: The printer is configured to use the context saving option (PCL SAVE and PS SAVE under the Memconfig Menu); however, due to a configuration change, the printer no longer has enough memory to support context saving.

Action: Press **Continue**. To restore context saving, add more memory to the printer. See “Memory Requirements” on page 5 for more information.

CONTEXT SAVE CHANGE

Meaning: The values for the PCL SAVE or PS SAVE items under the Memconfig Menu have been changed.

Action: Press the **Continue** key to accept the new values and continue printing.

DSK FMT RESTART

Meaning: The printer is restarting to include the hard drive in its configuration.

Action: None required.

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+ FORMAT DISK/- IGNORE DISK

Meaning: You are powering up with an unformatted hard drive, or you selected the FORMAT DISK action on the Test Menu.

Action: Press the **Value** key to format the hard drive. Press the **Shift** and **Value** keys simultaneously to continue as if there were no hard drive installed.

FLUSHING...

Meaning: The printer is canceling a PCL5e or PostScript job.

Action: None required.

FORMATTING

Meaning: The printer is formatting the hard drive.

Action: None required.

F/W xxxxxxx

Meaning: Firmware error (xxxxxxx can be any alphanumeric value).

Action: Power the printer off, wait ten seconds, and power the printer back on. If problems persist, call for technical support.

Note: When firmware errors occur, the printer might also print an error page. If the printer **does** print an error page, save it so you can tell technical support.

I/O INITIALIZING

Meaning: The network interface card is initializing.

Action: Normally none. If the message remains on the display and nothing prints, and you have an Ethernet or token-ring card, make sure your LAN cable is connected and the network interface card is seated.

- IGNORE DISK/+ FORMAT DISK

Meaning: You are powering up with an unformatted hard drive, or you selected the FORMAT DISK action on the Test Menu.

Action: Press the **Value** key to format the hard drive. Press the **Shift** and **Value** keys simultaneously to continue as if there were no hard drive installed.

IPDS COAX

Meaning: The printer is receiving IPDS data through the coax interface.

Action: None required.

IPDS ETHERNET

Meaning: The printer is receiving IPDS data through the Ethernet interface.

Action: None required.

IPDS TOKEN-RING

Meaning: The printer is receiving IPDS data through the token-ring interface.

Action: None required.

IPDS TWINAX

Meaning: The printer is receiving IPDS data through the twinax interface.

Action: None required.

JOB QUEUED

Meaning: An informational page is queued for printing.

Action: If the online indicator is off, press the **Online** key.

KEY NOT VALID

Meaning: You pressed a key that is not valid.

Action: Press another key. In some instances, you may need to press the **Online** key to use other keys such as the **Menu** key.

MEMCONFIG CHANGE

Meaning: You changed a value on the Memory Configuration (Memconfig) Menu.

Action: Press the **Continue** key to reboot the printer so the new value can take effect.

MEMCONFIG CHANGE 1200 DPI UNAVAIL

Meaning: You turned on context saving (PCL SAVE or PS SAVE) on the Memory Configuration (Memconfig) Menu. 1200 dpi emulation is no longer available because there is not enough memory.

Action: Press the **Continue** key to reboot the printer so the new value can take effect. To enable 1200 DPI emulation, add more memory (see “Memory Requirements” on page 5) or turn context saving off (see “Memory Configuration (Memconfig) Menu” on page 97).

MENU LOCKED

Meaning: The system administrator has locked the menu. You can view menu settings but you cannot change them.

Action: None required.

MRT COMPRESSION

Meaning: The printer is compressing the page image it is currently printing because it does not have enough memory to print the page without compression.

Action: None required.

NEW VALUES AT NEXT BOUNDARY

Meaning: You have taken the printer offline while a job was printing in order to change a menu value. The new value might not take effect until the next "job boundary". Different data streams, in particular SCS, define job boundaries in different ways, so it may take a while for the new value to take effect.

Action: None required. If problems occur, make sure you take the printer offline to change menu values only when no jobs are printing (the printer is in Ready state).

NONIPDS COAX

Meaning: The printer is receiving SCS or DSC/DSE data through the coax interface.

Action: None required.

NONIPDS TWINAX

Meaning: The printer is receiving SCS data through the twinax interface.

Action: None required.

OFFLINE

Meaning: The printer is offline.

Action: Press the **Online** key to make the printer active.

ONLINE HEX PRT

Meaning: The printer is performing a hexadecimal dump.

Action: None required.

PAGES:nnnn

Meaning: This is a response to the PAGE COUNT item on the Machine Info Menu, where nnnn is the number of pages the printer has printed.

Action: None required.

PA1 REQUESTED

Meaning: A PA1 request was sent to the host over the coax interface.

Action: None required.

PA2 REQUESTED

Meaning: A PA2 request was sent to the host over the coax interface.

Action: None required.

PCL ETHERNET

Meaning: The printer is receiving PCL5e data through the Ethernet interface.

Action: None required.

PCL PARALLEL

Meaning: The printer is receiving PCL5e data through the parallel interface.

Action: None required.

PCL TOKEN-RING

Meaning: The printer is receiving PCL5e data through the token-ring interface.

Action: None required.

PJL PARALLEL

Meaning: The printer is receiving or sending PJL information through the parallel interface.

Action: None required.

PJL TWINAX

Meaning: The printer is receiving or sending PJL information through the twinax interface.

Action: None required.

PLEASE WAIT

Meaning: The printer is processing data and cannot immediately respond to a request.

Action: Wait until the message clears. If the message remains and processing on the host appears to have stopped, power off the printer, wait ten seconds, and then power on the printer.

POWER SAVER ON

Meaning: The printer is in power-saving mode and has temporarily shut off power to certain of its components. Power will be restored as soon as a job is submitted.

Action: None required.

PS ETHERNET

Meaning: The printer is receiving PostScript data through the Ethernet interface.

Action: None required.

PS PARALLEL

Meaning: The printer is receiving PostScript data through the parallel interface.

Action: None required.

PS TOKEN-RING

Meaning: The printer is receiving PostScript data through the token-ring interface.

Action: None required.

PS TWINAX

Meaning: The printer is receiving PostScript data through the twinax interface.

Action: None required.

PS WAITING

Meaning: The printer is waiting for PostScript data.

Action: None required.

READY

Meaning: The printer is ready to receive data.

Action: None required.

+ REALLY FORMAT / - IGNORE DISK

Meaning: You have asked to format the hard drive.

Action: Press the **Value** key to format the hard drive. Press the **Shift** and **Value** keys simultaneously to cancel the formatting.

RECONFIGURING MEMORY

Meaning: The printer has received a print job that requires it to adjust memory settings for the current page.

Action: No action is required. The printer reconfigures its memory settings to print the current page. Afterward, its settings revert to normal. See “Memory Requirements” on page 5 for more information.

RESETTING PRINTER

Meaning: The printer is resetting to its default values.

Action: None required.

RESTORING DEFAULTS

Meaning: The printer is restoring the factory defaults for the printer.

Action: None required.

SWITCHING TO IPDS

Meaning: The printer is switching to IPDS.

Action: None required.

SWITCHING TO PCL

Meaning: The printer is switching to PCL5e.

Action: None required.

SWITCHING TO PS

Meaning: The printer is switching to PostScript.

Action: None required.

WAIT FOR IDLE PRINTER

Meaning: You attempted to print from the Test Menu while the printer was processing PCL, PostScript, or IPDS data.

Action: When a port timeout occurs for the data stream (PCL5e, PostScript, or IPDS), the Ready message appears on the operator panel. Wait for the Ready message and then try printing again.

WARMING UP

Meaning: The printer is warming up. When it is warm, it displays the READY message.

Action: None required. If the message seems to appear too frequently, change the value for the power-saving mode to a larger value. See "Changing the Power Savings (Sleep Mode) Interval" on page 31 for instructions on how to change the setting.

If the message displays for several minutes, the printer controller connection may be bad. In this case, call for service.

Error Messages

The following error messages require operator intervention; they are listed numerically.

02 TONER LOW

Meaning: The toner in the printer cartridge is low.

Action: Press the **Continue** key to continue printing (the TONER LOW message remains on the display). Ensure that a new toner cartridge is available. When the print quality becomes unacceptable, install the new toner cartridge (see "Changing the Toner Cartridge" on page 132).

Note: The TONER LOW item on the Configuration Menu lets you specify whether or not you want the printer to stop printing when it detects a TONER LOW condition. See "Configuration (Config) Menu" on page 95.

03 2000 SHEET INPUT COVER OPEN

Meaning: The cover at the back of the 2000-Sheet Input Drawer is open.

Action: Close the cover. If the message persists, make sure both corners of the cover are completely closed. Also check for paper inside the cover.

04 TONER CART MISSING

Meaning: The toner cartridge is either missing or is not in place.

Action: Open the printer and make sure the toner cartridge is seated correctly. If you have not installed a toner cartridge, do so now.

06 TOP COVER OPEN

Meaning: The top cover is open.

Action: Close the cover.

09 DUPLEX COVER OPEN

Meaning: A cover is open on the duplex unit.

Action: Make sure both duplex covers are closed.

10 FUSER COVER OPEN

Meaning: The fuser cover is open.

Action: Close the cover. If the duplex unit is installed, make sure you did not remove the entire fuser cover instead of just the duplex unit filler panel. See "The Duplex Unit" on page 157.

11 LOAD paper_size IN tray

Meaning: The tray is out of paper, the tray contains the wrong size paper, or the tray is loaded incorrectly. The message identifies the size of paper (*paper_size*) and the tray (*tray*) that needs paper. If the message indicates a tray you did not specify, either the original tray is out of paper and automatic tray switching is enabled, or the original tray contains the wrong-size paper. (Tray switching is automatic for paper size mismatches.) See "Turning Tray Switching On or Off" on page 64 .

Actions:

- If the tray is empty, refill it. The printer resumes printing on its own.
- If the tray contains the wrong size paper, you have two choices:
  1. To use the current paper size, press the **Continue** key.
  2. Load the correct paper size into the tray.
- If the tray contains the right size paper, make sure the paper is loaded correctly. Check the paper guides. The AUTOSENSED PAPER section of the printer configuration page shows what size paper the printer paper size sensors have determined is in each tray. See "Printing the Printer Configuration Page" on page 25.

- If you are printing a printer configuration page, make sure Letter or A4-size paper is loaded in the default tray.
- If you specified a different tray, and you do not want to use the tray specified in the message, you can do the following:
  1. Reset the printer by doing one of the following:
     a. Selecting RESET PRINTER from the Reset Menu (see "Reset Menu" on page 90).
     b. Powering the printer off and then powering it back on.
  2. Load the correct paper size in the tray you want to use.
  3. Resubmit the job.
- You can exclude trays from the tray switching search sequence. See the descriptions for the Paper Menu Items TRAY1 PROT, TRAY2 PROT, TRAY3 PROT, and AUXTRAYPROT in "Paper Menu" on page 90 .

12 MANUALLY LOAD paper_size IN AUX

Meaning: The auxiliary tray requires paper. The message indicates the required size (*paper_size*).

Action: Place another sheet of paper or other media in the auxiliary tray and press the **Continue** key. If you receive this message and you do not want to use the manual printing function, set MANUAL to OFF on the Paper Menu or using your printer driver. See "Paper Menu" on page 90.

14 ADJUST PAPER GUIDES IN TRAY n

Meaning: Paper guides in the specified tray need adjusting.

Action: Adjust the paper guides. See "Loading the A4/Letter Paper Tray" on page 41 or "Loading the A3/Ledger (11 x 17) Paper Tray" on page 45 .

15 2000 SHEET INPUT NOT READY

Meaning: The elevator mechanism in the 2000-Sheet Input Drawer is moving or out of position.

Action: Wait for the elevator to stop moving. Make sure the 2000-Sheet Input Drawer drawer is properly in place.

16 TRAY n MISSING

Meaning: The paper tray is not closed or installed.

Action: Open and close the tray. If you have not installed the tray, do so at this time.

17 tray OPTION ERROR

Meaning: An optional paper tray was detected previously, but is no longer detected.

Action: Make sure that the tray is installed correctly.

17 2000 SHEET INPUT ERROR

Meaning: The 2000-Sheet Input Drawer is not ready.

Action: Make sure that the 2000-Sheet Input Drawer has power and is properly installed.

20 PAPER JAM

Meaning: Paper has jammed near the exit area.

Action: Remove jammed paper from the paper path. Make sure to open and close the top cover. See “Chapter 5. Clearing Jams” on page 69 .

21 PAPER JAM

Meaning: Paper has jammed near one of the trays.

Action: Remove jammed paper from the paper path. Make sure paper is loaded correctly. Open and close the top cover. See “Chapter 5. Clearing Jams” on page 69.

22 PAPER JAM

Meaning: Paper has jammed in the duplex unit.

Action: Clear the jam. See “Duplex Unit Jams” on page 80.

23 PAPER JAM

Meaning: Paper has jammed near the fuser.

Action: Clear the jam. See “Fuser Area Jams” on page 77.

24 PAPER JAM

Meaning: Paper has jammed behind the toner cartridge.

Action: Remove jammed paper from the paper path. Make sure to open and close the top cover. See “Chapter 5. Clearing Jams” on page 69 .

26 PAPER JAM

Meaning: Paper has jammed in the 2000-Sheet Input Drawer exit area.

Action: Remove jammed paper from the paper path. Open and close the top cover of the printer. See “2000-Sheet Input Drawer Jams” on page 83 .

27 PAPER ERROR tray

Meaning: The printer detected a paper size mismatch. This can occur when the wrong size paper is fed from the auxiliary tray, when the tray paper guides are incorrectly adjusted, or when there is a multiple sheet feed from any tray.

Action: If the AUTOCONTINU item in the Config Menu is set to ON, printing resumes in ten seconds. Make sure paper is correctly loaded

in the tray and the end guides in the tray are properly set. For the auxiliary tray, verify the AUXSIZE setting on the Paper Menu (see "Defining the Auxiliary Tray Paper Size" on page 64). You may also need to open and close the top cover to clear the condition.

29 OUTPUT FULL

Meaning: The output bin is full.

Action: Remove the output from the bin.

30 MEMORY OVERFLOW

Meaning: Memory overflow. The printer has received more data than it can fit into its memory. This can happen when the printer receives too many soft fonts, macros, or complex graphics.

Action: If the AUTOCONTINU item in the Config Menu is set to ON, printing resumes in ten seconds. Otherwise, press the **Continue** key. Check the current page for errors. See "Memory Requirements" on page 5 for information on how much memory various options require.

31 MEMORY ALLOC ERROR

Meaning: The printer cannot allocate the memory required to print a job.

Action: If the AUTOCONTINU item in the Config Menu is set to ON, printing resumes in ten seconds. Otherwise, press the **Continue** key. Check the current page for errors.

32 PRINT OVERRUN

Meaning: A page is too complex to print at the current resolution.

Action: Do one of the following:

- If QUALITY is set to 1200, change it to something else and resubmit the job. Use your printer driver or the Config Menu. The driver setting overrides the menu setting. See "Configuration (Config) Menu" on page 95.
- If you are feeding paper long-edge first, change it to short-edge first.
- Add more memory. See "Memory Requirements" on page 5 for information on how much memory various options require.

40 MEMORY OPTION ERROR

Meaning: A SIMM module is not properly seated in its slot or is in some other way defective.

Action: Turn off the printer. Pull out the controller card. Reseat the SIMM module. If the message recurs after you restart the printer, call for service.

41 NETWORK OPTION ERROR

Meaning: The printer detected a network interface card in the top slot, but the card is not communicating.

Action: Make sure the network interface card is properly installed and restart the printer. See “Installing a Network Interface Card” on page 154 . If the message recurs, call for service. Remove the network interface card from the printer if you want to print a printer configuration page or if you want to print from the parallel port.

42 NETWORK OPTION ERROR

Meaning: The printer detected a network interface card in the bottom slot, but the card is not communicating.

Action: Make sure the network interface card is properly installed and restart the printer. See “Installing a Network Interface Card” on page 154 . If the message recurs, call for service. Remove the network interface card from the printer if you want to print a printer configuration page or if you want to print from the parallel port.

43 PS OPTION ERROR

Meaning: The printer has detected a problem.

Action: Reinstall all SIMMs. See “Installing a SIMM” on page 149. If the message recurs, call for service.

44 IPDS OPTION ERROR

Meaning: The printer has detected a problem in the IPDS SIMM.

Action: Reinstall the IPDS SIMM. See “Installing a SIMM” on page 149 . If the message recurs, call for service.

45 OPTION ERROR

Meaning: The printer has detected a problem with a SIMM.

Action: Reinstall all SIMMs. See “Installing a SIMM” on page 149. If the message recurs, call for service.

46 NETWORK OPTION ERROR

Meaning: The printer has detected that two of the same network interface cards have been installed.

Action: Remove one of the cards.

50 ERROR CALL FOR SERVICE

Meaning: The printer detected a fuser problem.

Action: Turn off the printer for fifteen minutes and then turn on the printer. If the message recurs, call for service.

51 ERROR CALL FOR SERVICE

Meaning: A problem has occurred.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

52 ERROR CALL FOR SERVICE

Meaning: The printer has detected an error in the print mechanism.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

53 ERROR CALL FOR SERVICE

Meaning: The printer has detected a problem with the main motor.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

54 ERROR CALL FOR SERVICE

Meaning: The printer has detected a problem in the duplex unit.

Action: Make sure the duplex unit is installed correctly. Call for service if the problem continues.

55 ERROR CALL FOR SERVICE

Meaning: The printer has detected a problem with the fan.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, reinstall all SIMMs. See “Installing a SIMM” on page 149 . If the message recurs, call for service.

56 ERROR CALL FOR SERVICE

Meaning: The printer has detected an error in the engine NVRAM.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

61 ERROR CALL FOR SERVICE

Meaning: The printer has detected an error in the ROM checksum.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

62 ERROR CALL FOR SERVICE

Meaning: The printer has detected an error in the DRAM.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, reinstall all SIMMs. See “Installing a SIMM” on page 149 . If the message recurs, call for service.

63 ERROR CALL FOR SERVICE

Meaning: The printer has detected an error in the NVRAM (EEPROM).

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, reinstall all SIMMs. See “Installing a SIMM” on page 149 . If the message recurs, call for service.

71 DISK ERROR

Meaning: The printer has detected a problem with the hard drive.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

72 DISK ERROR

Meaning: The printer has detected a problem with the hard drive.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

73 DISK ERROR

Meaning: The printer has detected a problem with the hard drive.

Action: Power off the printer, wait twenty seconds, then power on. If the error recurs, call for service.

80 ADD MEMORY FOR IPDS

Meaning: The printer requires more memory before it can process IPDS jobs.

Action: Install more memory. See “Memory Requirements” on page 5 for information about IPDS memory requirements. See “Installing a SIMM” on page 149 for information about installing memory SIMMs.

81 INSUFFICIENT MEMORY FOR IPDS

Meaning: The printer does not have enough memory available to process IPDS jobs.

Action: Power off the printer, wait twenty seconds, and then power on the printer to clear memory. If the error happens again, you may need to install more memory. See “Memory Requirements” on page 5 for information about IPDS memory requirements. See “Installing a SIMM” on page 149 for information about installing memory SIMMs.

82 HOST TIMEOUT

Meaning: The coax network interface card has sent an Intervention Required message to the host. This error occurs when (a) the printer is OFFLINE for longer than the HLD TMEOUT setting in the Coax Setup Menu, or (b) the printer has been in an intervention required state (such as out of paper) for longer than the IRQ TMEOUT setting.

Action: Solve the problem that caused the message (for example, press the **Online** key to put the printer online, or add paper). To disable this error message, set the HLD TMEOUT and IRQ TMEOUT values in the Coax Setup Menu to 0.

83 CX SEND STATE

Meaning: Your coax host has placed your printer in “Send State” and is waiting for the printer to return a PA signal.

Action: Press the **Continue** key to clear the message. (You may need to press the key more than once.) Then do the following to send the PA signal.

1. Press the **Online** key to take the printer offline.
2. Press the **Menu** key until you see the Coax SCS Menu.
3. Press the **Item** key until you see PA1 or PA2 (whichever signal you want to send).
4. Press the **Enter** key to send the signal.
5. Press the **Online** key to resume printing.

Appendix D. Specifications and Repackaging

This chapter describes environmental and consumable information for purchasing of supplies. It also provides procedures for repackaging the printer for service or relocation.

Printer Specifications

Printing system	Xerography
Exposure system	Semiconductor laser beam scanning
Resolution	600 dpi, switchable to emulated 1200 dpi
Warm-up time	Within 60 seconds after power on at 68 degrees F (20° C)
Dimensions and Weight	Base (with 500-sheet A4/Letter paper tray): Width 580 mm (22.8 in.) Depth 438 mm (17.2 in.) Height 413 mm (16.3 in.) Weight 31 kg (68.2 lb.) Base (with duplex unit and three 500-sheet A4/Letter paper trays): Width 580 mm (22.8 in.) Depth 474 mm (18.7 in.) Height 745 mm (29.3 in.) Weight 54.5 kg (120 lb.) Base (with 500-sheet A3/ledger paper tray): Width 580 mm (22.8 in.) Depth 602 mm (23.7 in.) Height 413 mm (16.3 in.) Weight 32.5 kg (71.5 lb.) Base (with duplex unit and three 500-sheet A3/ledger paper trays): Width 580 mm (22.8 in.) Depth 638 mm (25.1 in.) Height 745 mm (29.3 in.) Weight 59 kg (129.8 lb.)

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Power Consumption	Model 001 (120 Volts): Operating: 840 watts maximum Standby: 15 watts maximum
	Model 002 (220 Volts): Operating: 860 watts maximum Standby: 15 watts maximum
	Model 003 (100 Volts): Operating: 750 watts maximum Standby: 15 watts maximum
Noise level	Operating: 49.5/50.5 dB(A) Standby: 35 dB(A) The operating noise level is 49.5 dB(A) with one paper drawer and no duplex unit. Otherwise it is 50.5 dB(A).
Environment	Operating: Temperature: 61 to 90° F (16 to 32° C) Humidity: 8 to 80 percent relative humidity Altitude: 0 to 8,333 feet (2 500 m) Shipping and Storage: Temperature: -4 to 104° F (-20 to 40° C) Humidity: 5 to 85 percent relative humidity Altitude (storage): 0 to 8,333 feet (2,500 m) Altitude (shipping): 0 to 49,200 feet (15,000 m) **Note:** The shipping and storage humidity can be between 5 and 15% or 85 and 95% for a maximum of 48 hours only.
Clearance	Front — 760 mm (30.4 in.) Sides — 200 mm (8 in.) Back — 340 mm (13.6 in.)

Cartridge Specifications

Part number	90H0748
Temperature for Storage	0° to 35° C (32° to 95° F)
Humidity for storage	15 to 80% **Note:** The shipping and storage humidity can be between 5 to 15% or 85 to 95% for a maximum of 48 hours only.

Cartridge life	Approximately 14,000 images at 5% coverage on Letter-size paper. Depending on the type of printing you do, you can obtain up to double the page yield if you use the ECONO setting for QUALITY item on the Config Menu or if you select toner saver print quality mode from your printer driver. (Note that the driver setting will override the menu setting.) For example, using ECONO and a density setting of 1, you may be able to print up to 28,000 images at 5% coverage. **Note:** The actual page yield is affected by the environment, the type of print media, the percentage of text and graphics, the complexity of the graphics, and other factors, so actual results can vary.

Repackaging the Printer

Important!

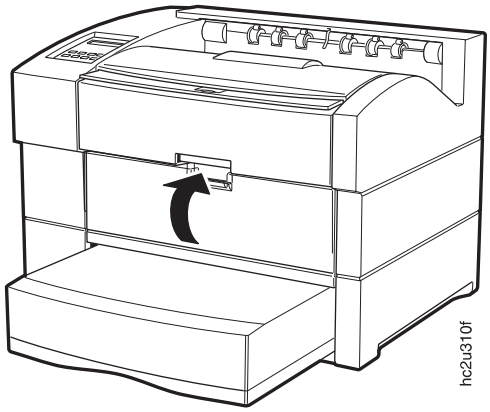
If you intend to ship your printer for service or repairs, pack it in the original container. If you need a new shipping container, contact IBM technical support, or, in the U.S.A. and Canada, call 1-800-388-7080 (Maintenance, Parts, and Warranty Center).

Also, make sure you complete and return the Repair Inventory Worksheet with your printer. See "Appendix E. Repair Inventory Worksheet" on page 231.

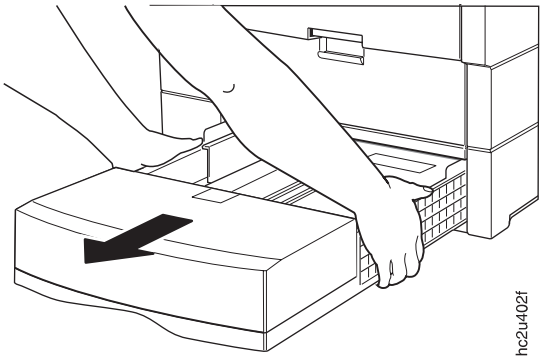
Follow these procedures to repackage your printer for relocating or shipping.

1. Switch the printer power off.
2. Unplug the printer from the wall outlet.
3. Remove the power cord from the back of the printer.

4. Close the auxiliary tray.

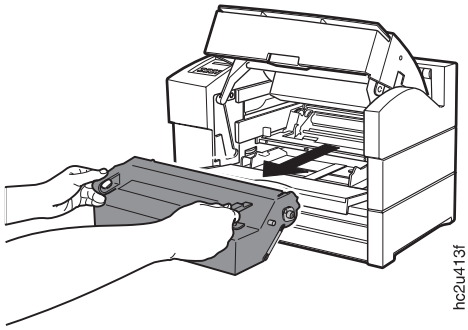


5. Remove all paper from the paper trays.
6. Pull the 500-sheet tray out until it stops, then slightly lift it up and remove it from the printer.



7. Remove the following options from the printer (if installed):
   - 500-sheet paper trays (see “Removing 500–Sheet Paper Trays” on page 170)
   - Duplex unit (see “Removing the Duplex Unit” on page 161)
   - 2000-Sheet Input Drawer (see “Removing the 2000-Sheet Input Drawer” on page 182)

8. Open the top cover and remove the toner cartridge.



9. Place the toner cartridge inside a foil bag or the package that it came in. Keep the cartridge level during storage.

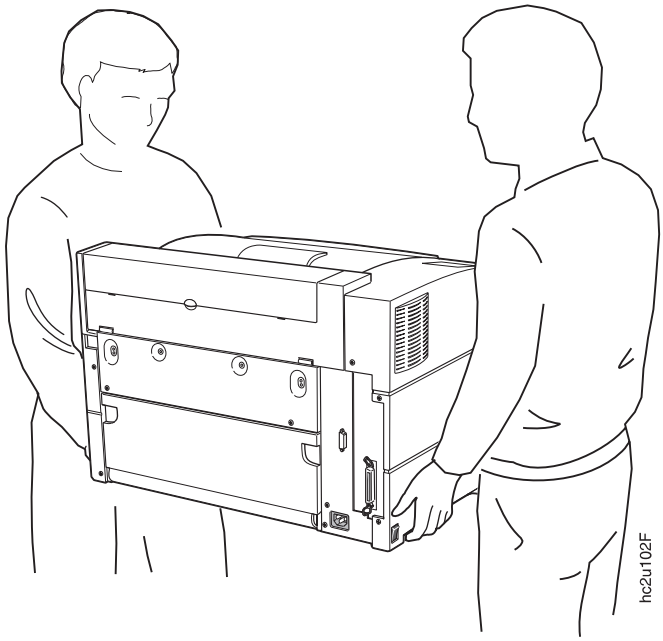
   Note: Do not ship the toner cartridge with the printer.

10. To lift the printer, grasp the recessed areas of the bottom edges on the right and left sides, not from the front and back side. Never try to lift the printer while holding any part other than the left and right bottom edges.

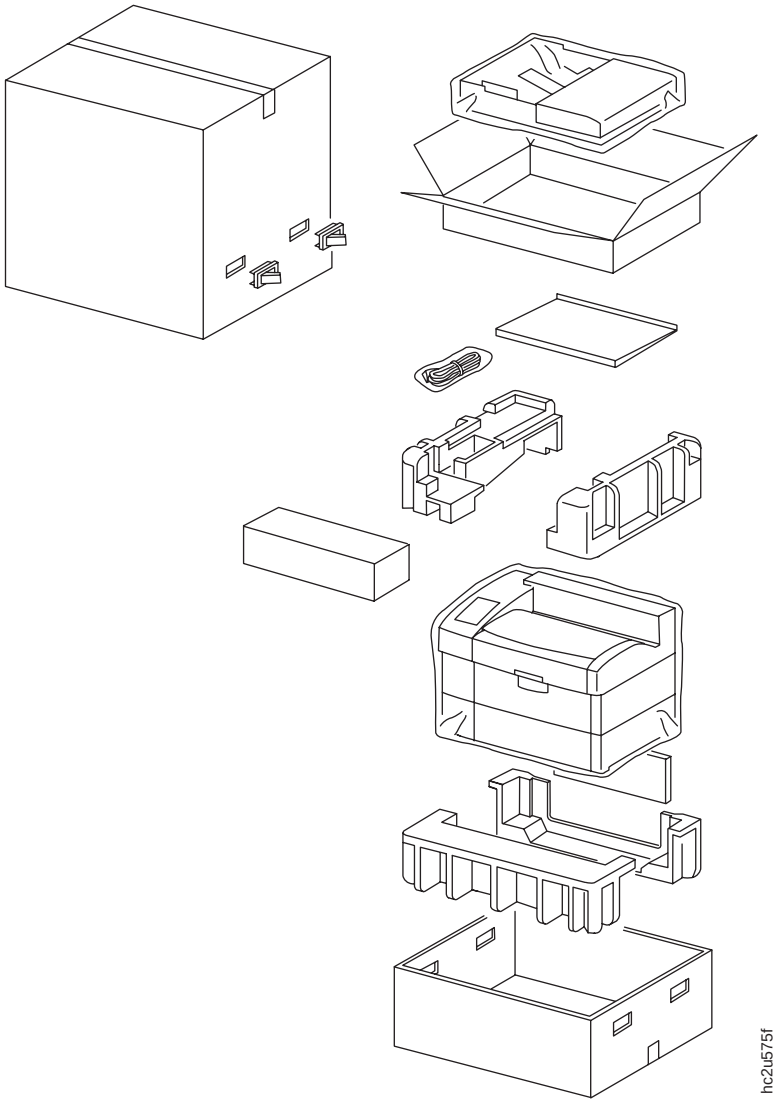
CAUTION:

<2-31> The printer weighs approximately 30 kg (67 lb). Use two persons to carry the printer. Use appropriate lifting precautions.

hcsf0231


hc2u102F

11. Place the printer back into its original packaging. Make sure to install the styrofoam packing shims as shown.



12. Complete and include a copy of the Repair Inventory Worksheet with the printer. Make sure you note all of the printer options that are still installed on the printer. See “Appendix E. Repair Inventory Worksheet” on page 231.

Appendix E. Repair Inventory Worksheet

Important!

Please make a copy of this worksheet and include it with your printer if you need to ship your printer for repairs. Shipping your printer without this worksheet may delay repairs.

Customer Information

Customer name _____
Customer contact _____
Telephone _____
Machine type _____
Serial number _____

Inventory Checklist

Please check all of the options that you are returning with your printer.

___ Duplex unit
___ A3 paper tray
___ A3 paper drawer
___ A4 paper tray
___ A4 paper drawer
___ 2000-Sheet Input Drawer
___ 75-envelope tray
___ Token-Ring network interface card
___ Ethernet network interface card
___ IPDS SIMM
___ Coax card
___ Twinax card
___ Hard drive
___ Base PCL/PostScript SIMM
___ 4MB DRAM
___ 8MB DRAM
___ 16MB DRAM
___ 32MB DRAM
___ 2MB Flash SIMM
___ 4MB Flash SIMM

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Energy Star

The Environmental Protection Agency (EPA) ENERGY STAR Computers program is a partnership effort with manufacturers of data processing equipment to promote the introduction of energy-efficient personal computers, monitors, printers, fax machines, and copiers to help reduce air pollution and global warming caused by electricity generation.

IBM Printing Systems Company participates in this program by introducing printers that reduce power consumption when they are not being used. As an Energy Star Partner, IBM Printing Systems Company, has determined that Model 001 (120 Volts) and Model 003 (100 Volts) of this product meets the Energy Star guidelines for energy efficiency.

Communications Statements (Class B)

The statements in this section apply when none of the following features are installed. If any of these features **are** installed, see “Communications Statements (Class A)” on page 237.

- 2000-Sheet Input Drawer
- Network Card for Token-Ring
- Network Card for Ethernet
- IBM Coax SCS Interface
- IBM Twinax SCS Interface
- IBM Field Bill-of-Material 11L6589

Federal Communication Notices Commission (FCC) Statement

IBM 4320-001

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors (IEEE Std 1284-1994 compliant) must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines, Corp.
Old Orchard Road
Armonk, NY 10504
Tele: 1-919-543-2193

European Union (EU) Electromagnetic Conformity Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States

relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

EU Conformity Statement: This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22/European standard EN 55022. The limits for Class B equipment were derived for typical environments to provide reasonable protection against interference with licensed communication devices.

German Conformity Statement

Zulassungsbescheinigung Gesetz über die elektromagnetische Verträglichkeit von Geraten (EMVG) vom 30. August 1995

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen das EG-Konformitätszeichen - CE - zu führen.

Der Außteller der Konformitätserklärung ist die IBM .....(1)

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082-1 und EN 55022 Klasse B.

Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

Industry Canada Compliance Statement

This Class B digital apparatus meets the requirements of the Canadian Interference-causing equipment regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

The United Kingdom Telecommunications Act 1984

This apparatus is approved under the approval No. NS/G/1234/J/100003 for the indirect connections to the public telecommunications systems in the United Kingdom.

Japanese VCCI Class 2 ITE Statement

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取扱説明書に従って正しい取り扱いをして下さい。

Communications Statements (Class A)

The statements in this section apply when any of the following features are installed. If none of these features are installed, see “Communications Statements (Class B)” on page 234.

- 2000-Sheet Input Drawer
- Network Card for Token-Ring
- Network Card for Ethernet
- IBM Coax SCS Interface
- IBM Twinax SCS Interface
- IBM Field Bill-of-Material 11L6589

Federal Communication Notices Commission (FCC) Statement

IBM 4320-001

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors (IEEE Std 1284-1994 compliant) must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user’s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines, Corp.
Old Orchard Road
Armonk, NY 10504
Tele: 1-919-543-2193

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This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

German Conformity Statement

Zulassungsbescheinigung Gesetz über die elektromagnetische Verträglichkeit von Geraten (EMVG) vom 30. August 1995

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen das EG-Konformitätszeichen - CE - zu führen.

Der Außteller der Konformitätserklärung ist die IBM .....(1)

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082-1 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte bedürfen folgender Hinweise:

Nach dem EMVG: “Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesminesters für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.” (Auszug aus dem EMVG, Paragraph 3, Abs.4) Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Nach der EN 55022: “Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.”

Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

The United Kingdom Telecommunications Act 1984

This apparatus is approved under approval No. NS/G/1234/J/100003 for the indirect connections to the public telecommunications systems in the United Kingdom.

Industry Canada Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-causing equipment regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Statement of CISPR 22 Edition 2 Compliance

Attention:

This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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居住的環境中使用時，可
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Warning:

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Glossary

The following terms are defined as they are used in InfoPrint 20 documentation. If you do not find the term you need, refer to the index or to the *IBM Dictionary of Computing* ZC20-1699 or the *IBM Dictionary of Printing*, G544-3973.

A4-size paper. Paper that is 210 by 297 mm

A5-size paper. Paper that is 148.5 by 210 mm

A6-size paper. Postcard stock that is 105 by 148 mm

adhesive label. Special-application material; typically consists of paper labels coated on one side with an adhesive mixture temporarily affixed to backing material.

ASCII. American National Standard Code for Information Interchange. The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), that is used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters.

Autocontinue. A function activated in the Config Menu that determines if the printer should resume printing without waiting for operator responses to certain types of errors. Examples of the types of errors that use this function are insufficient memory to print a complex page or a request to load paper (where printing can continue using a different size of paper than was specified for the job).

B5-JIS size paper. Paper that is 182 mm by 257 mm (7.17 in. by 10.12 in.).

B5-ISO size paper. Paper that is 176 mm by 250 mm (6.93 in. by 9.84 in.).

binder holes. A series of holes or slots punched at set intervals that allows the form to be inserted in a loose-leaf or ring binder.

binding. An item in the Paper Menu that specifies, for duplex sheets, which edge should be used for binding. LONG binding assumes the sheets will be bound along the long edge of the paper, SHORT binding assumes the sheets will be bound along the short edge of the paper.

bitmapped font. A font in which each character is defined by a raster bitmap.

bond (paper). Paper formulated with at least 80% wood pulp. Bond-paper forms work best in the InfoPrint 20.

buffer. A routine or storage used to compensate for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another.

character set. (1) A finite set of different characters that is complete for a given purpose; for example, the character set in ISO Standard 646, “7-bit Coded Character Set of Information Processing Interchange.” (2) A group of characters used for a specific reason; for example, the set of characters a printer can print.

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coated paper. Paper that has had a surface coating applied to produce smoothness.

coaxial. A cable consisting of one conductor, usually a small copper tube or wire, within and insulated from another conductor of larger diameter, usually copper tubing or copper braid.

code page. A font library of hexadecimal identifiers to graphic characters.

configuration. (1) The arrangement of a computer system or network as defined by the nature, the number, and the chief characteristics of its functional units. More specifically, the term configuration may refer to a hardware configuration or a software configuration. (2) The devices and programs that make up a system, subsystem, or network.

connector. A means of establishing electrical flow.

cut-sheet paper. Paper that is cut into sheets.

data stream. (1) All data transmitted through a data channel in a single read or write operation. (2) A continuous stream of data elements being transmitted, or intended for transmission, in character or binary-digit form, using a defined format.

default. An alternative value, attribute, or option that is assumed when none has been specified.

diagnostic. Pertaining to the detection and isolation of errors in programs and faults in equipment.

disable. To make non-functional. Contrast with enable.

DRAM. Dynamic random-access memory.

dry ink. The material that forms the image on the paper. Synonymous with toner.

DSC. 3270 Information Display System data-stream compatibility.

DSE. Data switching exchange.

duplex printing. Printing on both sides of a sheet of paper. Synonym for two-sided printing. Contrast with simplex printing.

Ethernet. A 10-megabit baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and transmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

flash memory. A type of random-access storage that preserves its contents when power is removed from it.

folio. 8.5 x 13 in. paper. Also called Legal 13.

font. (1) A family or assortment of characters of a given size and style; for example, 9-point Bodoni modern. A font has a unique name and may have a registry number. (2) A font is data used to create an image of each graphic character; for example, a raster pattern.

format. (1) The arrangement or layout of data on a data medium. (2) The size, style, type of page, margins, printing requirements, and so on, of a printed page.

forms. The material on which output data is printed, such as paper or adhesive labels. See preprinted form.

forms path. The entire route that forms travel during processing. The forms path usually begins where the forms are loaded and ends at the stacker. Synonym for paper path.

fuse. To use heat and pressure to blend toner onto forms to make a permanent bond.

fuser. The assembly that bonds the toned image to the paper, using heat and pressure.

graphic. A symbol produced by a process such as handwriting, drawing, or printing. See also vector graphics.

graphic character. A character that is normally represented by a graphic, independent of code points or fonts. A graphic character is often in the form of a spatial arrangement of adjacent or connected strokes; for example, a letter or digit.

hard drive. A standalone disk drive that reads and writes data on rigid disks and can be attached to a port on the printer. Synonymous with fixed disk drive, hard disk drive.

Hewlett-Packard Printer Command Language (HP-PCL). A data stream used for printing on Hewlett-Packard laser printers and compatible printers.

host system. (1) The primary or controlling computer in a multiple-computer installation. (2) A computer used to prepare programs for use on another computer or on another data-processing system; for example, a computer used to compile, link edit, or test programs to be used on another system.

image. (1) A string of picture elements organized in scan lines to represent the contrasting portions of a picture. (2) A likeness or imitation of an object. (3) In this printer, an image comprises a string of pels organized in scan lines to represent the contrasting portions of a picture. The image may consist of any data stored as a raster pattern. The term image is interchangeable with impression. See also impression.

impression. An implied or physical page. Used when calculating the reduction of printer output caused by switching the printer between duplex and simplex modes or upper and lower paper supplies. See also image.

Intelligent Printer Data Stream. An architected host-to-printer data stream that contains both data and controls defining how the data (text, image, graphics, and bar code) is to be presented. IPDS provides a device-independent interface for controlling and managing all-points addressable printers.

interface. A shared boundary. An interface might be a hardware component to link two devices or it might be a portion of storage or registers accessed by two or more computer programs.

IPDS. See Intelligent Printer Data Stream.

intervention. An unexpected condition that requires user intervention to clear it; for example, out of toner.

ISO sizes. Pertaining to a set of paper sizes selected from those standardized by the International Organization for Standardization (ISO) for use in data processing.

jam. In a printer, a condition where forms have become blocked or wedged in the forms path so the printer cannot operate.

JIS. Japanese Industry Standards. Used in reference to paper standards for size.

landscape orientation. Text and images that are printed parallel to the longer side of the forms. Contrast with portrait orientation.

laser (light amplification by stimulated emission of radiation). A device that emits a beam of coherent light.

LEF. Long-edge feed. The print medium is fed into the printer long edge first.

legal-size paper. Paper that is 216 mm x 356 mm (8.5 in. x 14.0 in.).

letter-size paper. Paper that is 216 mm x 279 mm (8.5 in. x 11.0 in.).

logical page. The print on the page, such as composed text, graphics, and fonts within defined margins. See also page. Contrast with physical page.

MRT compression. Memory Reduction Technology algorithms to compress printed pages into smaller memory space.

NetBIOS. Local area network basic input/output system.

network interface cards. Optional features that allow the printer to attach to computer networks. The printer can have up to two network interface cards installed, allowing it to communicate with two networks.

offline. Not connected to an installed and enabled attachment. Contrast with online.

offset stacking. The jogged stacking of output media in the output stacker so that jobs protrude from the balance of the stack to give physical identification.

online. Connected to an installed and enabled attachment. Contrast with offline.

orientation. The number of degrees an object is rotated relative to a reference; for example, the orientation of an overlay relative to the page point of origin. See also text orientation.

output bin. The part of the InfoPrint 20 where the printed sheets are collected.

outline font. A font whose graphic character shapes are defined by mathematical equations rather than by raster patterns. Contrast with raster font.

overrun condition. Loss of data because a receiving device is unable to accept data at the rate it is transmitted.

page. A collection of information bound by the beginning page control and its associated end control. A page of printing is one side of a sheet of paper or form. See also logical page and physical page.

paper path. The entire route that forms travel while they are being processed. The paper path usually begins where the forms are loaded and ends at the stacker.

parallel port. An access point through which a computer transmits or receives data that consists of several bits sent simultaneously on separate wires.

PCL5e. Hewlett-Packard's Printer Command Language, a data stream used for printing.

pel (picture element). (1) An element of a raster pattern; a point where a toned area on the photoconductor may appear. (2) On an all-points-addressable output medium, each pel is an addressable unit. On a row-column addressable output medium, the only pel addressable is the beginning of a character cell.

physical page. The form on which the printer is printing, such as an 8-1/2 x 11-inch sheet of paper. See also page. Contrast with logical page.

pitch. A unit of measurement for the width of a printed character. It identifies the number of graphic characters per inch; for example, 10-pitch has ten graphic characters per inch. Uniformly spaced fonts are measured in pitches. Contrast with point.

point. A unit of measurement for describing type sizes. There are 12 points to a pica, about 72 points to an inch.

point of origin. The location of the first print position on a logical page. The point of origin is usually stated in terms of X and Y coordinates. The point of origin used by a printer can be affected by factors such as printable area and forms orientation.

portrait orientation. Pertaining to a display or hard copy with greater height than width. Contrast with landscape orientation.

PostScript. (1) A page description language with interactive graphics capabilities that was developed by Adobe Systems, Inc. (2) An interpretive programming language that describes the appearance of text, graphical shapes, and sampled images on a printed page by defining a print file format that is the interface between document composition applications and raster printing devices.

preprinted form. A sheet of forms containing a preprinted design of constant data with which variable data can be combined. See also forms.

Print-Error Marker (PEM). Small, black, rectangular marks that indicate incorrectly placed data in the valid printable area.

print position. The physical positions of the characters constituting a print line relative to the form.

print quality. The quality of printed output relative to existing standards and in comparison with jobs printed earlier.

print surface. The side of a form that receives the printed image.

raster. (1) In computer graphics, a predetermined pattern of lines that provides uniform coverage of a display space. (2) The coordinate grid that divides the display area of a display device. (3) In the InfoPrint 20, an on/off pattern of electrostatic images produced by the laser print head under control of the character generator.

raster font. A font in which each character is defined by a raster bitmap.

raster pattern. A series of picture elements (pels) arranged in scan lines to form an image.

raster scan. A technique of generating or recording the elements of an image by a line-by-line sweep across the entire output medium.

resident font. Those font data sets that are resident within the printer. They usually reside on the printer disk media (diskette or hard disk). These font sets are usually commonly used fonts. Having them resident reduces font load time. These fonts may also be used during offline testing of the printer.

scalable font. A font whose graphic characters are represented by mathematical equations and can be sized to different heights.

SCS. See SNA character string.

SEF. Short-edge feed. The print medium is fed into the printer short edge first.

SIMM. Single inline memory module.

simplex printing. Printing on one side of a sheet of paper. Contrast with duplex printing.

SNA character string. In SNA, a character string composed of EBCDIC controls, optionally intermixed with end-user data, that is carried within a request/response unit.

skew. Refers to the paper going through the paper path at a slight angle. This will cause the printing lines to not be aligned properly.

stacker. A device used to hold paper or forms that have been printed; the output device of a printer.

storage. (1) The retention of data in a storage device. (2) In word processing, a unit into which recorded text can be entered, in which it can be retained and processed, and from which it can be retrieved. (3) A device, or part of a device, that can retain data.

symbol set. In PCL5e, a particular assignment of hexadecimal identifiers to graphic characters.

text orientation. The position of text as a combination of print direction and baseline direction. See also orientation.

token ring. A network with a ring topology that passes tokens from one attaching device to another; for example, the IBM Token-Ring Network.

toner. (1) In a document-printing machine, image-forming material used in electrostatic processes. (2) A supply item for the printer. The black powder used for printing images. Synonymous with dry ink.

toner density. The amount of toner dispersed over a specified area. Higher toner density yields darker print; lower toner density produces lighter print.

trailing edge. The trailing edge of the paper is the edge of the paper that proceeds into the printer last as it is fed from one of the paper supplies.

twinax attachment. A twinaxial attachment to the AS/400.

twinaxial. A cable consisting of two conductors, usually small copper tubes or wires insulated from each other, within and insulated from another conductor of larger diameter, usually copper tubing or copper braid. This type of cable is often used to attach printers to an AS/400 system.

two-sided printing. Printing on both sides of a sheet of paper. Synonymous with duplex printing. Contrast with simplex printing.

valid printable area. The area represented by the intersection of the physical page and the current logical page. You can use the VPA CHK item on the IPDS Menu to specify if attempts to print outside this area cause errors to be reported to the host.

xerographic paper. A paper that is manufactured specifically for the xerographic process, in which key paper qualities are carefully controlled.

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